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THE
METHOD OF CALCULATING THE VALUES
OF
Life Annuities, Assurances,
FINES PAYABLE ON THE RENEWING OF
LEASES, &c.

FOR TERMS OF YEARS CERTAIN AND FOR LIVES ;

With a large

COLLECTION OF TABLES,

Comprising some on Three Lives, never before published ;

THE WHOLE ILLUSTRATED BY USEFUL EXAMPLES.

BY WILLIAM HENDRY.

TOGETHER WITH

AN APPENDIX,

CONTAINING

A TABLE OF THE DUTIES ON LEGACIES, &c.

Granted by Stat. 55, Geo. III. Cap. 184 ;

AND TABLES OF THE VALUES OF LIFE ANNUITIES ;

By Stat. 36, Geo. III. Cap. 52.

~~~~~  
HULL :

*Printed by William Ross, Bowlalley-Lane ;*

AND SOLD BY BALDWIN, CRADOCK AND JOY, AND J. BUTTERWORTH AND SON, LONDON ;  
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TOPPING AND DAWSON, HULL ; AND ALL OTHER BOOKSELLERS.

—  
1820.

THE HISTORY OF THE  
CITY OF BOSTON

FROM THE FIRST SETTLEMENT  
TO THE PRESENT TIME  
BY  
JOHN HUTCHINGS

IN TWO VOLUMES.  
THE FIRST VOLUME  
CONTAINING THE HISTORY  
FROM THE FIRST SETTLEMENT  
TO THE YEAR 1700

THE SECOND VOLUME  
CONTAINING THE HISTORY  
FROM THE YEAR 1700  
TO THE PRESENT TIME

LONDON:  
Printed by J. DODD, in Pall-mall.

1790.

TO THE  
WORSHIPFUL THE MAYOR  
AND ALDERMEN

OF THE  
TOWN OF KINGSTON-UPON-HULL,

*THIS WORK IS,*

WITH ALL DEFERENCE AND RESPECT,

INSCRIBED BY THEIR

MOST OBEDIENT HUMBLE SERVANT,

WILLIAM HENDRY.

HULL,  
October 16th, 1820.



## PREFACE.

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It was long since said by Sir Jonas Moor, in his Arithmetic, “ that the canon of logarithms is in every man’s hand, but their perfect use, in decimal fractions, known to few.” A similar observation may be truly made at the present day with respect to life annuity tables, for not one half of the persons, who are in possession of them, know how to apply them to practice; and calculations of this sort have sometimes been ridiculed from the want of giving the subject a proper investigation.

Having this view of the case, and a plan in my mind which, I thought, would be understood by every reader who has a knowledge of the common rules of arithmetic, I lost no time in beginning my system. I studied the works of Baron Maseres, Dr. Price, Mr. Moody and Mr. Bailey; and being of opinion, with an eminent mathematician, that materials of this sort are common property, I either extracted or imitated whatever best suited my purpose. I have been at the trouble, which was not a little, to calculate Table 28 at 4 and 5 per cent. and Table 29 at 5 per cent. on three joint lives, and also several others.

All the tables in the collection are deduced from the Northampton Table of Observations. I have shewn the way of computing them, and have given a sufficient number of proper and useful Examples for adapting them to practical purposes.

The method pursued is new, and I flatter myself that, to the public in general, and to the gentlemen of the profession in particular, this work will be acceptable.

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## COMPOUND INTEREST, ANNUITIES, &c.

---

COMPOUND INTEREST arises from any principal and its interest put together as the interest becomes due; so that at every payment, or at the time when the payments became due, there is created a new principal, and for that reason it is called compound interest, or interest upon interest.

For instance, suppose £100 were lent out for two years at 5 per cent. compound interest, then at the end of the first year it will only amount to £105 as in simple interest, but for the second year this £105 becomes principal, which will amount to £110. 5s. at the second year's end; when by simple interest it would have been but £110. And although it is not lawful to let out money at compound interest, yet it is usual to allow it to purchasers of annuities, &c. and it is in effect received and paid by bankers in such cash accounts as are regularly settled at the close of every year.

## CASE I.

To find the present worth of any sum to be received at the end of any number of years.

## RULE.

Multiply £1, increased by its interest for a year, so often into itself as are years proposed, abating one, by which product divide the given amount, and the quotient is the answer.

## EXAMPLE.

What is the present worth of £1, to be received 2 years hence, discounting at 5 per cent. compound interest?

$$\begin{array}{r} 1,05 \\ 1,05 \\ \hline 525 \\ 1050 \\ \hline \end{array}$$

$$1,1025)1,00000(,907029 \text{ or } 18s. 1\frac{3}{4}d. \text{ nearly.}$$

$$99225$$

$$\hline 77500$$

$$77175$$

$$\hline 32500$$

$$22050$$

$$\hline 101500$$

$$99225$$

*By this case the following Table is constructed.*

TABLE I.

The present value of £1, to be received at the end of any number of years, not exceeding 100, discounting at the rates of 4,  $4\frac{1}{2}$  and 5 per cent. compound interest.

| Years. | 4 per Cent. | $4\frac{1}{2}$ per Cent. | 5 per Cent. | Years. | 4 per Cent. | $4\frac{1}{2}$ per Cent. | 5 per Cent. |
|--------|-------------|--------------------------|-------------|--------|-------------|--------------------------|-------------|
| 1      | ,961538     | ,956938                  | ,952381     | 42     | ,192575     | ,157440                  | ,128840     |
| 2      | ,921556     | ,915730                  | ,907029     | 43     | ,185168     | ,150663                  | ,122704     |
| 3      | ,883996     | ,876297                  | ,863838     | 44     | ,178046     | ,144173                  | ,116864     |
| 4      | ,854804     | ,838561                  | ,822702     | 45     | ,171198     | ,137964                  | ,111297     |
| 5      | ,821927     | ,802451                  | ,783526     | 46     | ,164614     | ,132023                  | ,105997     |
| 6      | ,790315     | ,767896                  | ,746215     | 47     | ,158283     | ,126338                  | ,100949     |
| 7      | ,759918     | ,734828                  | ,710681     | 48     | ,152195     | ,120898                  | ,96142      |
| 8      | ,730696     | ,703185                  | ,676839     | 49     | ,146341     | ,115692                  | ,91564      |
| 9      | ,702587     | ,672904                  | ,644609     | 50     | ,140713     | ,110719                  | ,87204      |
| 10     | ,675564     | ,643928                  | ,613913     | 51     | ,135301     | ,105942                  | ,83051      |
| 11     | ,649581     | ,616199                  | ,581679     | 52     | ,130097     | ,101380                  | ,79096      |
| 12     | ,624597     | ,589664                  | ,556837     | 53     | ,125093     | ,97014                   | ,75330      |
| 13     | ,600574     | ,564272                  | ,530321     | 54     | ,120282     | ,92837                   | ,71743      |
| 14     | ,577475     | ,539973                  | ,505068     | 55     | ,115656     | ,88839                   | ,68326      |
| 15     | ,555265     | ,516720                  | ,481017     | 56     | ,111207     | ,85013                   | ,65073      |
| 16     | ,533908     | ,494469                  | ,458112     | 57     | ,106930     | ,81353                   | ,61974      |
| 17     | ,513373     | ,473176                  | ,436297     | 58     | ,102817     | ,77819                   | ,59023      |
| 18     | ,493628     | ,452800                  | ,415521     | 59     | ,98963      | ,74497                   | ,56212      |
| 19     | ,474642     | ,433302                  | ,395734     | 60     | ,95060      | ,71289                   | ,53536      |
| 20     | ,456387     | ,414643                  | ,376889     | 61     | ,91404      | ,68219                   | ,50986      |
| 21     | ,438834     | ,396787                  | ,358942     | 62     | ,87889      | ,65281                   | ,48558      |
| 22     | ,421955     | ,379701                  | ,341850     | 63     | ,84508      | ,62470                   | ,46246      |
| 23     | ,405726     | ,363350                  | ,325571     | 64     | ,81258      | ,59780                   | ,44044      |
| 24     | ,390121     | ,347703                  | ,310068     | 65     | ,78133      | ,57206                   | ,41946      |
| 25     | ,375117     | ,332731                  | ,295303     | 66     | ,75128      | ,54742                   | ,39949      |
| 26     | ,360689     | ,318402                  | ,281241     | 67     | ,72238      | ,52385                   | ,38047      |
| 27     | ,346817     | ,304691                  | ,267848     | 68     | ,69460      | ,50129                   | ,36235      |
| 28     | ,333477     | ,291571                  | ,255094     | 69     | ,66788      | ,47971                   | ,34509      |
| 29     | ,320651     | ,279015                  | ,242946     | 70     | ,64219      | ,45905                   | ,32866      |
| 30     | ,308319     | ,267000                  | ,231377     | 71     | ,61749      | ,43928                   | ,31301      |
| 31     | ,296460     | ,255502                  | ,220359     | 72     | ,59374      | ,42037                   | ,29811      |
| 32     | ,285058     | ,244500                  | ,209866     | 73     | ,57091      | ,40226                   | ,28391      |
| 33     | ,274094     | ,233971                  | ,199873     | 74     | ,54895      | ,38494                   | ,27039      |
| 34     | ,263552     | ,223896                  | ,190355     | 75     | ,52784      | ,36836                   | ,25752      |
| 35     | ,253415     | ,214254                  | ,181290     | 76     | ,50754      | ,35250                   | ,24525      |
| 36     | ,243669     | ,205028                  | ,172657     | 77     | ,48801      | ,33732                   | ,23357      |
| 37     | ,234297     | ,196199                  | ,164436     | 78     | ,46924      | ,32280                   | ,22245      |
| 38     | ,225285     | ,187750                  | ,156605     | 79     | ,45120      | ,30890                   | ,21186      |
| 39     | ,216621     | ,179665                  | ,149148     | 80     | ,43384      | ,29559                   | ,20177      |
| 40     | ,208289     | ,171929                  | ,142046     | 81     | ,41716      | ,28287                   | ,19216      |
| 41     | ,200278     | ,164525                  | ,135282     | 82     | ,40111      | ,27068                   | ,18301      |

| Years. | 4 per Cent. | 4½ per Cent. | 5 per Cent. | Years. | 4 per Cent. | 4½ per Cent. | 5 per Cent. |
|--------|-------------|--------------|-------------|--------|-------------|--------------|-------------|
| 83     | ,038569     | ,025903      | ,017430     | 92     | ,027098     | ,017430      | ,011235     |
| 84     | ,037085     | ,024787      | ,016600     | 93     | ,026055     | ,016680      | ,010700     |
| 85     | ,035659     | ,023720      | ,015809     | 94     | ,025053     | ,015961      | ,010191     |
| 86     | ,034287     | ,022699      | ,015056     | 95     | ,024090     | ,015274      | ,009705     |
| 87     | ,032968     | ,021721      | ,014339     | 96     | ,023163     | ,014616      | ,009243     |
| 88     | ,031700     | ,020786      | ,013657     | 97     | ,022272     | ,013987      | ,008803     |
| 89     | ,030481     | ,019891      | ,013006     | 98     | ,021416     | ,013385      | ,008384     |
| 90     | ,029309     | ,019034      | ,012387     | 99     | ,020592     | ,012808      | ,007985     |
| 91     | ,028182     | ,018215      | ,011797     | 100    | ,019800     | ,012257      | ,007604     |

## EXAMPLES.

1. What ready money will purchase £1000, to be received 20 years hence, discounting interest at 5 per cent.?

Opposite 20 years and under 5 per cent.  
we find ,376889  
Multiply by 1000  
376,889 present value.

2. What ready money will pay a debt of £500, due 3 years hence, at 4 per cent.?

Opposite 3 years and under 4 per cent.  
is ,888996  
Multiply by 500  
444,498 or £444. 10s. nearly.

3. What ready money will discharge a debt of £2000, to be paid 30 years hence, at 5 per cent.?

Opposite 30 years and under 5 per cent.  
we find ,231377  
Multiply by 2000  
462,754000 Answer £462. 15s. 0¼d.

4. What is the present worth of £810. 10s. due 3 years hence, interest 5 per cent.?

Opposite 3 years and under 5 per cent. is ,863838  
Multiply by 810,5

4319190  
8638380  
6910704

*Answer* £700. 2s. 9¼d. 700,1406990

5. A owes several sums at distant periods, viz. £500 at 5 years, £600 at 10 years, £1000 at 7 years, and £900 at 4 years; but having got a considerable legacy, is resolved to pay them off on discount at 5 per cent. compound interest; how much will do it?

Opposite 5 years and under 5 per cent. is ,783526  
Multiply by 500=391,7630

Opposite 10 years.....is ,613913  
Multiply by 600=368,3478

Opposite 7 years.....is ,710681  
Multiply by 1000=710,6810

Opposite 4 years.....is ,822702  
Multiply by 900=740,4318

*Answer* £2211. 4s. 5¼d. 2211.2236

6. What is the present worth of £100, to be received 10 years hence, interest at 5 per cent.?

Opposite 10 and under 5 per cent. is ,613913  
Multiply by 100

*Answer* 61,3913

This value multiplied by the probability that a child, aged 11, will live 10 years (viz.  $61,3913 \times \frac{5060}{5623}$ , see Table 8,) gives £55. 4s. 10d. the value of an assurance of £100 in case a child that age attains the age of 21.

## CASE II.

To find the present worth of any annuity or lease for any number of years.

## RULE.

Multiply £1, increased by its interest for a year, so often into itself as are years proposed, abating one, by which product divide the given annuity, subtract the quotient from the annuity and divide the remainder by the interest of £1 for a year, and the quotient is the answer.

## EXAMPLE.

What is the present value of £1 annuity, for 3 years, allowing 5 per cent. to the purchaser?

$$\begin{array}{r}
 1,05 \times 1,05 \times 1,05 = 1,157625 \quad 1,0000000 \\
 \hline
 \phantom{1,05 \times 1,05 \times 1,05 = 1,157625} ,8638376 \\
 \text{Annuity } 1,0000000 \\
 \phantom{1,05 \times 1,05 \times 1,05 = 1,157625} ,8638376 \\
 \hline
 \text{Interest of } \pounds 1 \text{ for a year } ,05 \quad ,1361624 \\
 \phantom{1,05 \times 1,05 \times 1,05 = 1,157625} \phantom{1,0000000} ,1361624 \\
 \hline
 \phantom{1,05 \times 1,05 \times 1,05 = 1,157625} \phantom{1,0000000} \phantom{1,0000000} 2,72324 \text{ Answer.} \\
 \hline
 \hline
 \end{array}$$

*The following Table is constructed by this case.*

Or the 2d, 3d, 4th, &c. numbers are the sums of the 1st and 2d; of the 1st, 2d and 3d; of the 1st, 2d, 3d and 4th, &c. &c. numbers respectively in Table 1.

TABLE II.

The present value of an annuity of £1, for any number of years not exceeding 100, at the several rates of 4, 5 and 6 per cent.

| Years. | 4 per Cent. | 5 per Cent. | 6 per Cent. | Years. | 4 per Cent. | 5 per Cent. | 6 per Cent. |
|--------|-------------|-------------|-------------|--------|-------------|-------------|-------------|
| 1      | ,9615       | ,9523       | ,9433       | 43     | 20,3707     | 17,5459     | 15,3061     |
| 2      | 1,8860      | 1,8594      | 1,8333      | 44     | 20,5488     | 17,6627     | 15,3831     |
| 3      | 2,7750      | 2,7232      | 2,6730      | 45     | 20,7200     | 17,7740     | 15,4558     |
| 4      | 3,6298      | 3,5459      | 3,4651      | 46     | 20,8846     | 17,8800     | 15,5243     |
| 5      | 4,4518      | 4,3294      | 4,2123      | 47     | 21,0429     | 17,9810     | 15,5890     |
| 6      | 5,2421      | 5,0756      | 4,9173      | 48     | 21,1951     | 18,0771     | 15,6500     |
| 7      | 6,0020      | 5,7863      | 5,5823      | 49     | 21,3414     | 18,1687     | 15,7075     |
| 8      | 6,7327      | 6,4632      | 6,2097      | 50     | 21,4821     | 18,2559     | 15,7618     |
| 9      | 7,4353      | 7,1078      | 6,8016      | 51     | 21,6174     | 18,3389     | 15,8130     |
| 10     | 8,1108      | 7,7212      | 7,3600      | 52     | 21,7475     | 18,4180     | 15,8613     |
| 11     | 8,7604      | 8,3064      | 7,8868      | 53     | 21,8726     | 18,4934     | 15,9069     |
| 12     | 9,3850      | 8,8632      | 8,3838      | 54     | 21,9929     | 18,5651     | 15,9499     |
| 13     | 9,9856      | 9,3935      | 8,8526      | 55     | 22,1086     | 18,6334     | 15,9905     |
| 14     | 10,5631     | 9,8986      | 9,2949      | 56     | 22,2198     | 18,6985     | 16,0288     |
| 15     | 11,1183     | 10,3796     | 9,7122      | 57     | 22,3267     | 18,7605     | 16,0649     |
| 16     | 11,6522     | 10,8377     | 10,1058     | 58     | 22,4295     | 18,8195     | 16,0989     |
| 17     | 12,1656     | 11,2740     | 10,4772     | 59     | 22,5284     | 18,8757     | 16,0311     |
| 18     | 12,6592     | 11,6895     | 10,8276     | 60     | 22,6234     | 18,9292     | 16,1614     |
| 19     | 13,1339     | 12,0853     | 11,1581     | 61     | 22,7148     | 18,9802     | 16,1900     |
| 20     | 13,5903     | 12,4622     | 11,4699     | 62     | 22,8027     | 19,0288     | 16,2170     |
| 21     | 14,0291     | 12,8211     | 11,7640     | 63     | 22,8872     | 19,0750     | 16,2424     |
| 22     | 14,4511     | 13,1630     | 12,0415     | 64     | 22,9685     | 19,1191     | 16,2664     |
| 23     | 14,8568     | 13,4885     | 12,3033     | 65     | 23,0466     | 19,1610     | 16,2891     |
| 24     | 15,2469     | 13,7986     | 12,5503     | 66     | 23,1218     | 19,2010     | 16,3104     |
| 25     | 15,6220     | 14,0939     | 12,7833     | 67     | 23,1940     | 19,2390     | 16,3306     |
| 26     | 15,9827     | 14,3751     | 13,0031     | 68     | 23,2635     | 19,2753     | 16,3496     |
| 27     | 16,3295     | 14,6430     | 13,2105     | 69     | 23,3302     | 19,3098     | 16,3676     |
| 28     | 16,6630     | 14,8981     | 13,4061     | 70     | 23,3945     | 19,3426     | 16,3845     |
| 29     | 16,9837     | 15,1410     | 13,5907     | 71     | 23,4562     | 19,3739     | 16,4005     |
| 30     | 17,2920     | 15,3724     | 13,7648     | 72     | 23,5156     | 19,4037     | 16,4155     |
| 31     | 17,5884     | 15,5928     | 13,9290     | 73     | 23,5727     | 19,4321     | 16,4297     |
| 32     | 17,8735     | 15,8026     | 14,0840     | 74     | 23,6276     | 19,4592     | 16,4431     |
| 33     | 18,1476     | 16,0025     | 14,2302     | 75     | 23,6804     | 19,4849     | 16,4558     |
| 34     | 18,4111     | 16,1929     | 14,3681     | 76     | 23,7311     | 19,5094     | 16,4677     |
| 35     | 18,6646     | 16,3741     | 14,4982     | 77     | 23,7799     | 19,5328     | 16,4790     |
| 36     | 18,9082     | 16,5468     | 14,6209     | 78     | 23,8268     | 19,5550     | 16,4896     |
| 37     | 19,1425     | 16,7112     | 14,7367     | 79     | 23,8720     | 19,5762     | 16,4996     |
| 38     | 19,3678     | 16,8678     | 14,8460     | 80     | 23,9153     | 19,5964     | 16,5091     |
| 39     | 19,5844     | 17,0170     | 14,9490     | 81     | 23,9571     | 19,6156     | 16,5180     |
| 40     | 19,7927     | 17,1590     | 15,0462     | 82     | 23,9972     | 19,6339     | 16,5264     |
| 41     | 19,9930     | 17,2943     | 15,1380     | 83     | 24,0357     | 19,6514     | 16,5343     |
| 42     | 20,1856     | 17,4232     | 15,2245     | 84     | 24,0728     | 19,6680     | 16,5418     |

| Years. | 4 per Cent. | 5 per Cent. | 6 per Cent. | Years. | 4 per Cent. | 5 per Cent. | 6 per Cent. |
|--------|-------------|-------------|-------------|--------|-------------|-------------|-------------|
| 85     | 24,1085     | 19,6838     | 16,5489     | 93     | 21,3486     | 19,7859     | 16,5928     |
| 86     | 24,1428     | 19,6988     | 16,5556     | 94     | 21,3736     | 19,7961     | 16,5969     |
| 87     | 24,1757     | 19,7132     | 16,5618     | 95     | 21,3977     | 19,8058     | 16,6009     |
| 88     | 24,2074     | 19,7268     | 16,5678     | 96     | 21,4209     | 19,8151     | 16,6046     |
| 89     | 24,2379     | 19,7398     | 16,5734     | 97     | 21,4431     | 19,8239     | 16,6081     |
| 90     | 24,2672     | 19,7522     | 16,5786     | 98     | 21,4646     | 19,8323     | 16,6114     |
| 91     | 24,2954     | 19,7640     | 16,5836     | 99     | 21,4852     | 19,8403     | 16,6145     |
| 92     | 24,3225     | 19,7752     | 16,5883     | 100    | 21,5050     | 19,8479     | 16,6175     |
|        |             |             | Perpetuity  |        | 25,0000     | 20,0000     | 16,6666     |

## EXAMPLES.

1. What is the present worth of an annuity of £40, to continue 5 years, discounting at 5 per cent. compound interest?

Opposite 5 years, under 5 per cent. is 4,3294  
Multiply by 40

*Present value* 173,1760 = £173. 3s. 6d.

2. What is the present worth of an yearly pension or rent of £75, to continue 4 years, but not to commence till 3 years hence, discounting at 5 per cent.?

Opposite 7 years, under 5 per cent. is 5,7863  
Ditto 3 ditto ditto is 2,7232 which subtract

3,0631  
Multiply by 75

153155  
214417

229,7325 = £229. 14s. 7½d.

3. An estate was offered on lease for 60 years at £350 per annum ; but the offer being rejected, a proposal was made to let it for the same term of years, on condition of receiving £300 per annum for the first 20 years, £350 for the second 20, and £400 for the third 20 ; what is the difference between the values of these two offers, interest 5 per cent. ?

Opposite 60 in the Table is  $18,9292 \times 350 = 6625,22$ , the present value of a rent of £350, to continue 60 years.

And opposite 20 is  $12,4622 \times 300 = 3738,66$ , the present worth of £300, to continue 20 years.

Opposite 40 is  $17,1590 - 12,4622 = 4,6968 \times 350 = 1643,88$ , the present worth of the second 20 years, and  $18,9292 - 17,1590 = 1,7702 \times 400 = 708,08$ , the present worth of the third 20 years ; hence  $3738,66 + 1643,88 + 708,08 = 6090,62 =$  the value of the latter proposal ; therefore  $6625,22 - 6090,62 = 534,60$  or £534. 12s. the difference in value of the two offers.

4. What is the present worth of £75 yearly rent, which is not to commence until 10 years hence, and then to continue 7 years after that time ; interest 6 per cent. ?

Opposite 17 years, under 6 per cent. is 10,4772  
Ditto 10 ditto ditto is 7,3600 subtract

3,1172

Multiply by the rent 75

155860  
218204

Answer £233. 15s. 9½d. 233,7900

## CASE III.

To find the sum to which any principal will increase, at any rate of compound interest, and for any time.

## RULE.

Multiply the amount of £1 for a year so often into itself as are years proposed, abating one, and the last product multiplied by the principal gives the answer.

## EXAMPLES.

1. What will £150 amount to in three years, at 5 per cent.?

*Or practically.*

$$\begin{array}{r}
 1,05 \\
 1,05 \\
 \hline
 1,1025 \\
 1,05 \\
 \hline
 1,157625 \\
 150 \\
 \hline
 \hline
 \end{array}$$

173,643750 = £173. 12s. 10½d. Answer.

$$\begin{array}{r}
 20)150 \quad 0 \quad 0 \\
 \quad 7 \quad 10 \quad 0 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 20)157 \quad 10 \quad 0 \dots 1\text{st year} \\
 \quad 7 \quad 17 \quad 6 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 20)165 \quad 7 \quad 6 \dots 2\text{d year} \\
 \quad 8 \quad 5 \quad 4\frac{1}{2} \\
 \hline
 \end{array}$$

£173 12 10½ Answer.

2. What will £1 amount to in four years, at 4 per cent.?

$$\begin{array}{r}
 1,04 \dots 1\text{st year} \\
 1,04 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1,0816 \dots 2\text{d year} \\
 1,04 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 1,124864 \dots 3\text{d year} \\
 1,04 \\
 \hline
 \end{array}$$

1,16985856 Answer.

*The following Table is computed by this case.*

# 11

## TABLE III.

Shewing the sum to which £1 principal will increase, at compound interest, in any number of years, not exceeding 100, at  $3\frac{1}{2}$ , 4 and 5 per cent.

| Years. | $3\frac{1}{2}$ per Cent. | 4 per Cent. | 5 per Cent. | Years. | $3\frac{1}{2}$ per Cent. | 4 per Cent. | 5 per Cent. |
|--------|--------------------------|-------------|-------------|--------|--------------------------|-------------|-------------|
| 1      | 1,035006                 | 1,040000    | 1,050000    | 42     | 4,211257                 | 5,192783    | 7,761587    |
| 2      | 1,071225                 | 1,081600    | 1,102500    | 43     | 4,389702                 | 5,400495    | 8,149666    |
| 3      | 1,108717                 | 1,124864    | 1,157625    | 44     | 4,543341                 | 5,616515    | 8,557150    |
| 4      | 1,147525                 | 1,169858    | 1,215506    | 45     | 4,702358                 | 5,841175    | 8,985007    |
| 5      | 1,187686                 | 1,216652    | 1,276281    | 46     | 4,866941                 | 6,074822    | 9,434258    |
| 6      | 1,229255                 | 1,265319    | 1,340095    | 47     | 5,037284                 | 6,317815    | 9,905971    |
| 7      | 1,272279                 | 1,315931    | 1,407100    | 48     | 5,213588                 | 6,570528    | 10,401269   |
| 8      | 1,316809                 | 1,368569    | 1,477455    | 49     | 5,396064                 | 6,833349    | 10,921333   |
| 9      | 1,362897                 | 1,423311    | 1,551328    | 50     | 5,584926                 | 7,106683    | 11,467399   |
| 10     | 1,410598                 | 1,480244    | 1,628894    | 51     | 5,780399                 | 7,390950    | 12,040769   |
| 11     | 1,459969                 | 1,539454    | 1,710339    | 52     | 5,982713                 | 7,686588    | 12,642808   |
| 12     | 1,511068                 | 1,601032    | 1,795856    | 53     | 6,192108                 | 7,994052    | 13,274948   |
| 13     | 1,563956                 | 1,665073    | 1,885649    | 54     | 6,408832                 | 8,313814    | 13,938696   |
| 14     | 1,618694                 | 1,731676    | 1,979931    | 55     | 6,633141                 | 8,646366    | 14,635630   |
| 15     | 1,675348                 | 1,800943    | 2,078928    | 56     | 6,865301                 | 8,992221    | 15,367412   |
| 16     | 1,733986                 | 1,872981    | 2,182874    | 57     | 7,105586                 | 9,351910    | 16,135783   |
| 17     | 1,794675                 | 1,947900    | 2,292018    | 58     | 7,354282                 | 9,725986    | 16,942572   |
| 18     | 1,857489                 | 2,025816    | 2,406619    | 59     | 7,611682                 | 10,115026   | 17,789700   |
| 19     | 1,922501                 | 2,106849    | 2,526950    | 60     | 7,878090                 | 10,519627   | 18,679185   |
| 20     | 1,989788                 | 2,191125    | 2,653297    | 61     | 8,153824                 | 10,940412   | 19,613145   |
| 21     | 2,059431                 | 2,278768    | 2,785962    | 62     | 8,439207                 | 11,378029   | 20,593802   |
| 22     | 2,131511                 | 2,369918    | 2,925260    | 63     | 8,734580                 | 11,833150   | 21,623492   |
| 23     | 2,206114                 | 2,464715    | 3,071523    | 64     | 9,040290                 | 12,306476   | 22,704667   |
| 24     | 2,283328                 | 2,563304    | 3,225099    | 65     | 9,356700                 | 12,798735   | 23,839900   |
| 25     | 2,363244                 | 2,665836    | 3,386354    | 66     | 9,684185                 | 13,310684   | 25,031895   |
| 26     | 2,445958                 | 2,772469    | 3,555672    | 67     | 10,023131                | 13,843112   | 26,283490   |
| 27     | 2,531567                 | 2,883368    | 3,733456    | 68     | 10,373911                | 14,396836   | 27,597664   |
| 28     | 2,620171                 | 2,998705    | 3,920129    | 69     | 10,737029                | 14,972709   | 28,977548   |
| 29     | 2,711877                 | 3,118651    | 4,116135    | 70     | 11,112825                | 15,571618   | 30,426425   |
| 30     | 2,806793                 | 3,243397    | 4,321942    | 71     | 11,501774                | 16,194483   | 31,947746   |
| 31     | 2,905031                 | 3,373133    | 4,538039    | 72     | 11,904336                | 16,842262   | 33,545134   |
| 32     | 3,006707                 | 3,508058    | 4,764941    | 73     | 12,320988                | 17,515952   | 35,222390   |
| 33     | 3,111942                 | 3,648381    | 5,003188    | 74     | 12,752222                | 18,216591   | 36,983510   |
| 34     | 3,220860                 | 3,794316    | 5,253347    | 75     | 13,198556                | 18,945254   | 38,839685   |
| 35     | 3,333590                 | 3,946088    | 5,516015    | 76     | 13,660499                | 19,703064   | 40,774320   |
| 36     | 3,450266                 | 4,103932    | 5,791816    | 77     | 14,138617                | 20,491187   | 42,813036   |
| 37     | 3,571025                 | 4,268089    | 6,081406    | 78     | 14,633468                | 21,310834   | 44,953688   |
| 38     | 3,696011                 | 4,438813    | 6,385477    | 79     | 15,145640                | 22,163268   | 47,201372   |
| 39     | 3,825371                 | 4,616365    | 6,704751    | 80     | 15,675737                | 23,049799   | 49,561441   |
| 40     | 3,959259                 | 4,801020    | 7,039988    | 81     | 16,224388                | 23,971791   | 52,039513   |
| 41     | 4,097833                 | 4,993061    | 7,391988    | 82     | 16,792241                | 24,930662   | 54,641488   |

| Years. | 3½ per Cent. | 4 per Cent. | 5 per Cent. | Years. | 3½ per Cent. | 4 per Cent. | 5 per Cent. |
|--------|--------------|-------------|-------------|--------|--------------|-------------|-------------|
| 83     | 17,379970    | 25,927889   | 57.373563   | 92     | 23,687115    | 36,903470   | 89,005227   |
| 84     | 17,988269    | 26,965004   | 60,242241   | 93     | 24,516164    | 38,379609   | 93,455488   |
| 85     | 18,617858    | 28,043601   | 63,254353   | 94     | 25,374230    | 39,914794   | 98,128263   |
| 86     | 19,269483    | 29,165349   | 66,417071   | 95     | 26,262328    | 41,511385   | 103,034676  |
| 87     | 19,943915    | 30,331963   | 69,737924   | 96     | 27,181510    | 43,171841   | 108,186410  |
| 88     | 20,641952    | 31,545241   | 73,224820   | 97     | 28,132862    | 44,898715   | 113,595730  |
| 89     | 21,364421    | 32,807051   | 76,886061   | 98     | 29,117513    | 46,694663   | 119,275517  |
| 90     | 22,112175    | 34,119332   | 80,730365   | 99     | 30,136626    | 48,562450   | 125,239293  |
| 91     | 22,886102    | 35,484106   | 84,766883   | 100    | 31,191407    | 50,504948   | 131,501257  |

## QUESTIONS.

1. What is the amount of £780, forborn 6 years, at 5 per cent. per annum compound interest?

Opposite 6 years and under 5 per cent.

we find 1,340095

Multiply by 780

107207600

9380665

1045,274100

20

5,4820

12

5,784

4

3,136 Answer £1045. 5s. 5¼d.

2. What is the amount of £500, forborn 20 years, at 5 per cent.?

Opposite 20 and under 5 per cent. is 2,653297

Multiply by 500

Answer £1326. 12s. 11½d. 1326,648500

3. What is the amount of £800, forborn 30 years, at  $3\frac{1}{2}$  per cent.?

Opposite 30 years and under  $3\frac{1}{2}$  per cent. is 2,806793  
Multiply by 800

*Answer* 2245,434400

4. What is the interest and amount of £700, for  $3\frac{1}{2}$  years, at 5 per cent.?

Opposite 3 years and under 5 per cent. is 1,157625  
700

40)810,3375 Amt. at 3 yrs.  
20,2584375 Do. half yr.

*Answer* 830,5959375

5. What is the amount of £1000, forborn  $40\frac{1}{2}$  years, at 4 per cent.?

Opposite 40 years and under 4 per cent. is 480102  
1000

50)4801,02 Amt. at 4 yrs.  
96,0204 Do. half yr.

*Answer* £4897. 0s.  $9\frac{1}{2}d.$  4897,0404

6. In what time will £376,8895 become £1000 at 5 per cent.?

376,8895)1000,0000

2,6532977 found opposite 20 years.

7. What will £50 amount to, when forborn 14 years, at 5 per cent.?

Opposite 14 and under 5 per cent. is 1,979931  
Multiply by 50

*Answer* £98. 19s. 11d. 98,996550

## CASE IV.

To find the sum to which any annuity will increase, at compound interest, in any number of years.

## RULE.

Multiply the given annuity by the amount of £1 for a year, to that product add the given annuity, and the sum is the amount in two years; multiply that sum by the amount of £1 for a year, and to the product add the given annuity, and the sum is the amount in three years, &c. for any number of years.

## EXAMPLES.

1. An annuity of £50, payable yearly, is forborn and unsettled for 3 years, what will then be due, reckoning compound interest at 5 per cent.?

$$\begin{array}{r}
 1,05 \dots \text{Amount of } \pounds 1 \text{ for a year} \\
 50 \dots \text{Annuity} \\
 \hline
 52,50 \\
 50 \\
 \hline
 102,50 \dots 2\text{d year} \\
 1,05 \\
 \hline
 107,625 \\
 50 \\
 \hline
 \text{Answer } 157,625 \dots 3\text{d year.}
 \end{array}$$

2. What will an annuity of £1 increase to in 4 years, at 5 per cent.?

$$\begin{array}{r}
 1,05 \dots \text{Amount of } \pounds 1 \text{ for a year} \\
 1 \dots \text{Annuity.} \\
 \hline
 1,05 \\
 1 \\
 \hline
 2,05 \dots 2\text{d year} \\
 1,05 \\
 \hline
 1025 \\
 2050 \\
 \hline
 2,1525 \\
 1 \\
 \hline
 3,1525 \dots 3\text{d year} \\
 1,05 \\
 \hline
 3,310125 \\
 1 \\
 \hline
 4,310125 \dots 4\text{th year.}
 \end{array}$$

*By this case the following Table is calculated.*

TABLE IV.

Shewing the sum to which £1 per annum will increase, at compound interest, in any number of years not exceeding 100.

| Years. | 3½ per Cent. | 4 per Cent. | 5 per Cent. | Years. | 3½ per Cent. | 4 per Cent. | 5 per Cent. |
|--------|--------------|-------------|-------------|--------|--------------|-------------|-------------|
| 1      | 1,000000     | 1,000000    | 1,000000    | 51     | 136,582837   | 159,773767  | 220,815395  |
| 2      | 2,035000     | 2,040000    | 2,050000    | 52     | 142,363236   | 167,164717  | 232,856165  |
| 3      | 3,106225     | 3,121600    | 3,152500    | 53     | 148,345949   | 174,851306  | 245,498973  |
| 4      | 4,214942     | 4,246164    | 4,310125    | 54     | 154,538057   | 182,845358  | 258,773922  |
| 5      | 5,362465     | 5,416322    | 5,525631    | 55     | 160,946889   | 191,159173  | 272,712618  |
| 6      | 6,550152     | 6,632975    | 6,801912    | 56     | 167,580030   | 198,805539  | 287,318249  |
| 7      | 7,779407     | 7,898294    | 8,142008    | 57     | 174,445332   | 208,797761  | 302,715661  |
| 8      | 9,051686     | 9,214226    | 9,549108    | 58     | 181,550918   | 218,149672  | 318,851444  |
| 9      | 10,368495    | 10,582795   | 11,026564   | 59     | 188,905200   | 227,875658  | 335,791017  |
| 10     | 11,731393    | 12,006107   | 12,577892   | 60     | 196,516852   | 237,990635  | 353,583717  |
| 11     | 13,141991    | 13,486351   | 14,206787   | 61     | 204,394973   | 248,510312  | 372,362903  |
| 12     | 14,601961    | 15,023805   | 15,917126   | 62     | 212,548797   | 259,450725  | 391,876048  |
| 13     | 16,113030    | 16,626837   | 17,712982   | 63     | 220,988005   | 270,828754  | 412,469851  |
| 14     | 17,676986    | 18,291911   | 19,598631   | 64     | 229,722585   | 282,661904  | 434,093343  |
| 15     | 19,295680    | 20,023587   | 21,578563   | 65     | 238,762476   | 294,968380  | 456,798611  |
| 16     | 20,971029    | 21,824531   | 23,657491   | 66     | 248,119577   | 307,767115  | 480,637911  |
| 17     | 22,705015    | 23,697512   | 25,840366   | 67     | 257,803762   | 321,077800  | 505,669807  |
| 18     | 24,499691    | 25,645412   | 28,132384   | 68     | 267,826894   | 334,920912  | 531,953297  |
| 19     | 26,357180    | 27,674229   | 30,539003   | 69     | 278,200335   | 349,317748  | 559,550962  |
| 20     | 28,279681    | 29,778078   | 32,065954   | 70     | 288,927864   | 364,290458  | 588,528510  |
| 21     | 30,269470    | 31,969201   | 33,719251   | 71     | 300,050689   | 379,862077  | 618,954936  |
| 22     | 32,328902    | 34,247969   | 35,505214   | 72     | 311,552463   | 396,056560  | 650,902683  |
| 23     | 34,460412    | 36,617888   | 41,430475   | 73     | 323,456800   | 412,898822  | 684,447817  |
| 24     | 36,666528    | 39,082601   | 44,501998   | 74     | 335,777788   | 430,414775  | 719,670208  |
| 25     | 38,949856    | 41,645908   | 47,727098   | 75     | 348,530010   | 448,631366  | 756,653718  |
| 26     | 41,313101    | 44,311744   | 51,113453   | 76     | 361,728561   | 467,576621  | 795,486404  |
| 27     | 43,759060    | 47,084214   | 54,663126   | 77     | 375,389060   | 487,279686  | 836,260724  |
| 28     | 46,290627    | 49,967592   | 58,402582   | 78     | 389,527677   | 507,770873  | 879,073760  |
| 29     | 48,910799    | 52,966286   | 62,322711   | 79     | 404,161146   | 529,081708  | 924,027448  |
| 30     | 51,622677    | 56,084937   | 66,438847   | 80     | 419,306786   | 551,244976  | 971,228821  |
| 31     | 54,429470    | 59,328335   | 70,760789   | 81     | 434,982524   | 574,294775  | 1020,790262 |
| 32     | 57,334502    | 62,701468   | 75,298829   | 82     | 451,206912   | 598,266566  | 1072,829775 |
| 33     | 60,341210    | 66,209527   | 80,063770   | 83     | 467,999154   | 623,197229  | 1127,471264 |
| 34     | 63,453152    | 69,857908   | 85,066959   | 84     | 485,379125   | 649,125119  | 1184,844827 |
| 35     | 66,674012    | 73,652224   | 90,320307   | 85     | 503,367394   | 676,090122  | 1245,087068 |
| 36     | 70,007603    | 77,593313   | 95,836322   | 86     | 521,985253   | 704,133728  | 1308,311422 |
| 37     | 73,457869    | 81,702246   | 101,628138  | 87     | 541,254737   | 733,299077  | 1374,758493 |
| 38     | 77,023894    | 85,970336   | 107,709545  | 88     | 561,198632   | 763,631040  | 1444,496418 |
| 39     | 80,724906    | 90,409140   | 114,095023  | 89     | 581,840605   | 795,176282  | 1517,721238 |
| 40     | 84,550277    | 95,025515   | 120,799774  | 90     | 603,205027   | 827,983333  | 1594,607300 |
| 41     | 88,509537    | 99,826536   | 127,839762  | 91     | 625,317202   | 862,102667  | 1675,337665 |
| 42     | 92,607371    | 104,819597  | 135,231751  | 92     | 648,203305   | 897,586773  | 1760,104549 |
| 43     | 96,818629    | 110,012331  | 142,993338  | 93     | 671,890420   | 934,490244  | 1849,109776 |
| 44     | 101,238331   | 115,412876  | 151,143005  | 94     | 696,406585   | 972,869851  | 1942,563265 |
| 45     | 105,781672   | 121,029392  | 159,700155  | 95     | 721,780815   | 1012,781648 | 2040,693528 |
| 46     | 110,484031   | 126,870567  | 168,685163  | 96     | 748,043144   | 1054,296034 | 2143,728205 |
| 47     | 115,350972   | 132,945390  | 178,119421  | 97     | 775,224654   | 1097,467875 | 2251,914615 |
| 48     | 120,388256   | 139,263206  | 188,025392  | 98     | 803,357517   | 1142,366590 | 2365,510346 |
| 49     | 125,601845   | 145,833734  | 198,426662  | 99     | 832,475030   | 1189,061254 | 2484,785863 |
| 50     | 130,997910   | 152,667083  | 209,347995  | 100    | 862,611656   | 1237,623704 | 2610,025156 |

## QUESTIONS.

1. An annuity of £100, payable yearly, is forborn and unsettled till the end of 3 years; what will then be due, reckoning compound interest at 5 per cent. per annum on all the payments then in arrear?

$$\begin{array}{r}
 \text{Opposite 3 years and under 5 per cent.} \\
 \text{we have } 3,1525 \\
 \text{Multiply by } 100 \\
 \hline
 315,2500 \quad \text{Answer } £315. 5s.
 \end{array}$$

2. A pays £2000 for an annuity of £100, to continue 50 years; B puts £2000 out at compound interest; which of them will amount to the greatest sum, at the end of 50 years, at the rate of 5 per cent. each?

$$\begin{array}{r}
 \text{Opposite 50 years, under 5 per cent. is } 209,347995 \\
 \text{Multiply by } 100 \\
 \hline
 20934,7995 \\
 \text{Opposite 50 (Table 3) is } 11,467399 \\
 \text{Multiply by } 2000 \\
 \hline
 22934,798000 \\
 \text{Deduct } 20934,7995 \\
 \hline
 1999,9985 \quad \text{Answer B gains } £2000.
 \end{array}$$

3. What will £20 per annum annuity amount to in 40 years, at 5 per cent.?

$$\begin{array}{r}
 \text{Under 5 per cent. and opposite 40,} \\
 \text{we find } 120,799774 \\
 \text{Multiply by } 20 \\
 \hline
 2415,995480 \quad \text{Answer.}
 \end{array}$$

4. What will £100 amount to, lent out yearly, with the accumulated interest on each £100, for 20 years, as 5 per cent.?

Opposite 20 years and under 5 per cent.

we find 33,065954

Multiply by 100

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3306,595400 *Answer.*

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5. A person owes £1000, and resolves to appropriate £10 per annum of his income towards discharging it. In what time will such an appropriation, interest 4 per cent. amount to a sum equal to the debt?

£1000 divided by £10 gives £100, the number in the table, under 4 per cent. and nearest to this quotient is 99,8265, which corresponds to 41 years; and this, therefore, is the time in which such an appropriation would sink the debt.

## CASE V.

To find the annuity which any sum will purchase.

### RULE.

Find the present worth of £1 annuity for the rate and time given by case 2, by which divide the sum wanted to be laid out.

### EXAMPLE.

What annuity will £1 purchase to continue 3 years, allowing compound interest 5 per cent.?

By case 2, the worth of £1 annuity, for 3 years, is found 2,72324.

Then 2,72324)1,000000(,3672 *Answer.*

816972

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1830280

1633944

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1963360

1906268

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570920

544648

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26272

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*This problem shews the method of constructing the following Table.*

# TABLE V.

The annuity, which £1 will purchase, for any number of years not exceeding 50.

| Years. | 4 per Cent. | 4½ per Cent. | 5 per Cent. | Years. | 4 per Cent. | 4½ per Cent. | 5 per Cent. |
|--------|-------------|--------------|-------------|--------|-------------|--------------|-------------|
| 1      | ,0100000    | ,0450000     | ,0500000    | 26     | ,0625673    | ,0660213     | ,0695643    |
| 2      | ,5301960    | ,5339975     | ,5378048    | 27     | ,0612385    | ,0647194     | ,0682918    |
| 3      | ,3603485    | ,3637733     | ,3672085    | 28     | ,0600129    | ,0635208     | ,0671225    |
| 4      | ,2754900    | ,2787436     | ,2820118    | 29     | ,0588799    | ,0624146     | ,0660455    |
| 5      | ,2246271    | ,2277916     | ,2309748    | 30     | ,0578301    | ,0613915     | ,0650514    |
| 6      | ,1907619    | ,1938783     | ,1970174    | 31     | ,0568553    | ,0604434     | ,0641321    |
| 7      | ,1666096    | ,1697014     | ,1728198    | 32     | ,0559485    | ,0595632     | ,0632804    |
| 8      | ,1485278    | ,1516096     | ,1547218    | 33     | ,0551035    | ,0587445     | ,0624900    |
| 9      | ,1344929    | ,1375744     | ,1406900    | 34     | ,0543147    | ,0579819     | ,0617554    |
| 10     | ,1232909    | ,1263788     | ,1295045    | 35     | ,0535773    | ,0572704     | ,0610717    |
| 11     | ,1141490    | ,1172481     | ,1203888    | 36     | ,0528868    | ,0566057     | ,0604344    |
| 12     | ,1065521    | ,1096661     | ,1128254    | 37     | ,0522395    | ,0559840     | ,0598397    |
| 13     | ,1001437    | ,1032753     | ,1064557    | 38     | ,0516319    | ,0554016     | ,0592842    |
| 14     | ,0946689    | ,0978203     | ,1010239    | 39     | ,0510608    | ,0548556     | ,0587646    |
| 15     | ,0899411    | ,0931138     | ,0963422    | 40     | ,0505234    | ,0543431     | ,0582781    |
| 16     | ,0858200    | ,0890153     | ,0922699    | 41     | ,0500173    | ,0538615     | ,0578222    |
| 17     | ,0821985    | ,0854175     | ,0886991    | 42     | ,0495402    | ,0534086     | ,0573947    |
| 18     | ,0789933    | ,0822369     | ,0855462    | 43     | ,0490898    | ,0529823     | ,0569933    |
| 19     | ,0761386    | ,0794073     | ,0827450    | 44     | ,0486645    | ,0525807     | ,0566162    |
| 20     | ,0735817    | ,0768761     | ,0802425    | 45     | ,0482624    | ,0522020     | ,0562617    |
| 21     | ,0712801    | ,0746005     | ,0779961    | 46     | ,0478820    | ,0518447     | ,0559282    |
| 22     | ,0691988    | ,0725456     | ,0759705    | 47     | ,0475218    | ,0515073     | ,0556142    |
| 23     | ,0673090    | ,0706824     | ,0741368    | 48     | ,0471806    | ,0511885     | ,0553184    |
| 24     | ,0655868    | ,0689870     | ,0724709    | 49     | ,0468571    | ,0508872     | ,0550396    |
| 25     | ,0640119    | ,0674390     | ,0709524    | 50     | ,0465502    | ,0506021     | ,0547767    |

## EXAMPLE.

A gentleman has £1000, which he wants to lay out upon an annuity to continue 20 years; how much will it purchase, allowing compound interest at 5 per cent?

Opposite 20 and under 5 per cent.

we find ,0802125  
1000

*Answer* 80.2125 = £80. 4s. 10d.

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## ANNUITIES.

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## ANNUITIES.

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When a sum of money is to be paid annually to any person for a term of years, or for life, it is called an annuity. There are several differences in law between an annuity and a rent; every rent is considered as issuing out of lands, but an annuity charges only the grantor or his heirs that have assets by descent; also no action lies for an annuity but the writ of annuity; but for the recovery of rent, the same remedy lies as for lands.

The value of annuities for life, is founded on observations made on the bills of mortality. Dr. Halley had recourse to the bills of mortality at Breslaw, the capital of Silesia, as a proper standard for Europe, being a place at a distance from the sea and not much crowded with foreigners. He pitches upon 1000 persons, all born in one year, and observes how many of these were alive every year from their birth to the extinction of the last, and consequently how many died each year, as in the first of the following tables. But in the city of London there is a greater disparity in the births and burials than in any other place, owing probably to the great resort of people from all parts of the world.

Dr. Price has made a table particularly suited to this populous city; he pitches on 28452 persons, all born in the same year, and records the number remaining alive each year till none were left alive.

He also calculated a table from the register of mortality at Northampton; and, by increasing the radix in his fourth edition from 1165 to 11650, has been enabled to adjust the decrements with greater regularity and precision.

The eighth table, calculated by Dr. Price, has been taken to be the guide of the Society for Equitable Assurances on Lives and Survivorships, and from which all their tables have been calculated.

The conclusions, deduced from tables however perfect, must always be uncertain, being nothing more than probabilities drawn from the usual period of human life.

TABLE VI.

Shewing the probabilities of life, deduced by Dr. Halley from observations on the bills of mortality of Breslaw.

| Age. | Persons living. | Decrease of Life. | Age. | Living. | Decrease | Age. | Living. | Decrease |
|------|-----------------|-------------------|------|---------|----------|------|---------|----------|
| 1    | 1000            | 145               | 31   | 523     | 8        | 61   | 232     | 10       |
| 2    | 855             | 57                | 32   | 515     | 8        | 62   | 222     | 10       |
| 3    | 798             | 38                | 33   | 507     | 8        | 63   | 212     | 10       |
| 4    | 760             | 28                | 34   | 499     | 9        | 64   | 202     | 10       |
| 5    | 732             | 22                | 35   | 490     | 9        | 65   | 192     | 10       |
| 6    | 710             | 18                | 36   | 481     | 9        | 66   | 182     | 10       |
| 7    | 692             | 12                | 37   | 472     | 9        | 67   | 172     | 10       |
| 8    | 680             | 10                | 38   | 463     | 9        | 68   | 162     | 10       |
| 9    | 670             | 9                 | 39   | 454     | 9        | 69   | 152     | 10       |
| 10   | 661             | 8                 | 40   | 445     | 9        | 70   | 142     | 11       |
| 11   | 653             | 7                 | 41   | 436     | 9        | 71   | 131     | 11       |
| 12   | 646             | 6                 | 42   | 427     | 10       | 72   | 120     | 11       |
| 13   | 640             | 6                 | 43   | 417     | 10       | 73   | 109     | 11       |
| 14   | 634             | 6                 | 44   | 407     | 10       | 74   | 98      | 10       |
| 15   | 628             | 6                 | 45   | 397     | 10       | 75   | 88      | 10       |
| 16   | 622             | 6                 | 46   | 387     | 10       | 76   | 78      | 10       |
| 17   | 616             | 6                 | 47   | 377     | 10       | 77   | 68      | 10       |
| 18   | 610             | 6                 | 48   | 367     | 10       | 78   | 58      | 9        |
| 19   | 604             | 6                 | 49   | 357     | 11       | 79   | 49      | 8        |
| 20   | 598             | 6                 | 50   | 346     | 11       | 80   | 41      | 7        |
| 21   | 592             | 6                 | 51   | 335     | 11       | 81   | 34      | 6        |
| 22   | 586             | 7                 | 52   | 324     | 11       | 82   | 28      | 5        |
| 23   | 579             | 6                 | 53   | 313     | 11       | 83   | 23      | 4        |
| 24   | 573             | 6                 | 54   | 302     | 10       | 84   | 19      | 4        |
| 25   | 567             | 7                 | 55   | 292     | 10       | 85   | 15      | 4        |
| 26   | 560             | 7                 | 56   | 282     | 10       | 86   | 11      | 3        |
| 27   | 553             | 7                 | 57   | 272     | 10       | 87   | 8       | 3        |
| 28   | 546             | 7                 | 58   | 262     | 10       | 88   | 5       | 2        |
| 29   | 539             | 8                 | 59   | 252     | 10       | 89   | 3       | 2        |
| 30   | 531             | 8                 | 60   | 242     | 10       | 90   | 1       | 1        |

TABLE VII.

Shewing the probabilities of life in London, formed from the bills of mortality, for 10 years, from 1771 to 1780, by Dr. Price.

| Age. | Living. | Decrease | Age. | Living. | Decrease. | Age.    | Living. | Decrease |
|------|---------|----------|------|---------|-----------|---------|---------|----------|
| 0    | 28452   | 9018     | 34   | 7949    | 190       | 68      | 1831    | 130      |
| 1    | 19434   | 3000     | 35   | 7759    | 190       | 69      | 1701    | 130      |
| 2    | 16434   | 1536     | 36   | 7569    | 190       | 70      | 1571    | 130      |
| 3    | 14898   | 1200     | 37   | 7379    | 190       | 71      | 1441    | 120      |
| 4    | 13698   | 800      | 38   | 7189    | 190       | 72      | 1321    | 120      |
| 5    | 12898   | 500      | 39   | 6999    | 200       | 73      | 1201    | 120      |
| 6    | 12398   | 318      | 40   | 6799    | 210       | 74      | 1081    | 110      |
| 7    | 12080   | 210      | 41   | 6589    | 210       | 75      | 971     | 110      |
| 8    | 11870   | 160      | 42   | 6379    | 210       | 76      | 861     | 100      |
| 9    | 11710   | 130      | 43   | 6169    | 210       | 77      | 761     | 100      |
| 10   | 11580   | 130      | 44   | 5959    | 210       | 78      | 661     | 90       |
| 11   | 11450   | 130      | 45   | 5749    | 200       | 79      | 571     | 80       |
| 12   | 11320   | 130      | 46   | 5549    | 200       | 80      | 491     | 70       |
| 13   | 11190   | 130      | 47   | 5349    | 200       | 81      | 421     | 60       |
| 14   | 11060   | 130      | 48   | 5149    | 200       | 82      | 361     | 52       |
| 15   | 10930   | 130      | 49   | 4949    | 193       | 83      | 309     | 48       |
| 16   | 10800   | 130      | 50   | 4756    | 190       | 84      | 261     | 44       |
| 17   | 10670   | 130      | 51   | 4566    | 190       | 85      | 217     | 40       |
| 18   | 10540   | 135      | 52   | 4376    | 180       | 86      | 177     | 35       |
| 19   | 10405   | 135      | 53   | 4196    | 180       | 87      | 142     | 30       |
| 20   | 10270   | 140      | 54   | 4016    | 180       | 88      | 112     | 25       |
| 21   | 10130   | 150      | 55   | 3836    | 170       | 89      | 87      | 20       |
| 22   | 9980    | 155      | 56   | 3666    | 170       | 90      | 67      | 15       |
| 23   | 9825    | 155      | 57   | 3496    | 165       | 91      | 52      | 12       |
| 24   | 9670    | 160      | 58   | 3331    | 160       | 92      | 40      | 10       |
| 25   | 9510    | 160      | 59   | 3171    | 160       | 93      | 30      | 8        |
| 26   | 9350    | 160      | 60   | 3011    | 160       | 94      | 22      | 7        |
| 27   | 9190    | 170      | 61   | 2851    | 150       | 95      | 15      | 6        |
| 28   | 9020    | 170      | 62   | 2701    | 150       | 96      | 9       | 5        |
| 29   | 8850    | 171      | 63   | 2551    | 150       | 97      | 4       | 3        |
| 30   | 8679    | 180      | 64   | 2401    | 150       | 98      | 1       | 1        |
| 31   | 8499    | 180      | 65   | 2251    | 140       | Total.. | 572781  | 28452    |
| 32   | 8319    | 180      | 66   | 2111    | 140       |         |         |          |
| 33   | 8139    | 190      | 67   | 1971    | 140       |         |         |          |

TABLE VIII.

Shewing the probabilities of life at all ages, formed by Dr. Price, from the register of mortality at Northampton, from 1735 to 1780.

| Age.    | Living. | Decrease | Age. | Living. | Decrease | Age.   | Living. | Decrease |
|---------|---------|----------|------|---------|----------|--------|---------|----------|
| 0       | 11650   | 1340     | 31   | 4310    | 75       | 65     | 1632    | 80       |
| 3 Mon.  | 10310   | 554      | 32   | 4235    | 75       | 66     | 1552    | 80       |
| 6 Mon.  | 9756    | 553      | 33   | 4160    | 75       | 67     | 1472    | 80       |
| 9 Mon.  | 9203    | 553      | 34   | 4085    | 75       | 68     | 1392    | 80       |
| 1 Year. | 8650    | 1367     | 35   | 4010    | 75       | 69     | 1312    | 80       |
| 2       | 7283    | 502      | 36   | 3935    | 75       | 70     | 1232    | 80       |
| 3       | 6781    | 335      | 37   | 3860    | 75       | 71     | 1152    | 80       |
| 4       | 6446    | 197      | 38   | 3785    | 75       | 72     | 1072    | 80       |
| 5       | 6249    | 184      | 39   | 3710    | 75       | 73     | 992     | 80       |
| 6       | 6065    | 140      | 40   | 3635    | 76       | 74     | 912     | 80       |
| 7       | 5925    | 110      | 41   | 3559    | 77       | 75     | 832     | 80       |
| 8       | 5815    | 80       | 42   | 3482    | 78       | 76     | 752     | 77       |
| 9       | 5735    | 60       | 43   | 3404    | 78       | 77     | 675     | 73       |
| 10      | 5675    | 52       | 44   | 3326    | 78       | 78     | 602     | 68       |
| 11      | 5623    | 50       | 45   | 3248    | 78       | 79     | 534     | 65       |
| 12      | 5573    | 50       | 46   | 3170    | 78       | 80     | 469     | 63       |
| 13      | 5523    | 50       | 47   | 3092    | 78       | 81     | 406     | 60       |
| 14      | 5473    | 50       | 48   | 3014    | 78       | 82     | 346     | 57       |
| 15      | 5423    | 50       | 49   | 2936    | 79       | 83     | 289     | 55       |
| 16      | 5373    | 53       | 50   | 2857    | 81       | 84     | 231     | 48       |
| 17      | 5320    | 58       | 51   | 2776    | 82       | 85     | 186     | 41       |
| 18      | 5262    | 63       | 52   | 2694    | 82       | 86     | 145     | 34       |
| 19      | 5199    | 67       | 53   | 2612    | 82       | 87     | 111     | 28       |
| 20      | 5132    | 72       | 54   | 2530    | 82       | 88     | 83      | 21       |
| 21      | 5060    | 75       | 55   | 2448    | 82       | 89     | 62      | 16       |
| 22      | 4985    | 75       | 56   | 2366    | 82       | 90     | 46      | 12       |
| 23      | 4910    | 75       | 57   | 2284    | 82       | 91     | 34      | 10       |
| 24      | 4835    | 75       | 58   | 2202    | 82       | 92     | 24      | 8        |
| 25      | 4760    | 75       | 59   | 2120    | 82       | 93     | 16      | 7        |
| 26      | 4685    | 75       | 60   | 2038    | 82       | 94     | 9       | 5        |
| 27      | 4610    | 75       | 61   | 1956    | 82       | 95     | 4       | 3        |
| 28      | 4535    | 75       | 62   | 1874    | 81       | 96     | 1       | 1        |
| 29      | 4460    | 75       | 63   | 1793    | 81       |        |         |          |
| 30      | 4385    | 75       | 64   | 1712    | 80       | Total. | 299198  | 11650    |

The rule for finding the expectation of a life at any age, by a table of observations, is “to divide the sum of all the living in the table at the age whose expectation is required, and at all greater ages by the sum of all that die annually at that age and above it; or, which is the same, by the number (in the table) of the living at that age, and half unity subtracted from the quotient will be the required expectation.”

Thus, in the last table, the sum of all the living, at 20 and upwards, is 174155; the number living at that age is 5132; and the former number divided by the latter, and half unity subtracted from the quotient, gives 33.43, the expectation of a life at 20.

*The following Table is computed by this rule.*

TABLE IX.

Shewing the expectations of human life at every age, deduced from the Northampton table of observations.

| Ages. | Expectations. | Ages. | Expect. | Ages. | Expect. | Ages. | Expect. | Ages. | Expect. |
|-------|---------------|-------|---------|-------|---------|-------|---------|-------|---------|
| 0     | 25,18         | 20    | 33,43   | 40    | 23,08   | 59    | 13,68   | 78    | 5,48    |
| 1     | 32,74         | 21    | 32,90   | 41    | 22,56   | 60    | 13,21   | 79    | 5,11    |
| 2     | 37,79         | 22    | 32,39   | 42    | 22,04   | 61    | 12,75   | 80    | 4,75    |
| 3     | 39,55         | 23    | 31,88   | 43    | 21,54   | 62    | 12,28   | 81    | 4,41    |
| 4     | 40,58         | 24    | 31,36   | 44    | 21,03   | 63    | 11,81   | 82    | 4,09    |
| 5     | 40,84         | 25    | 30,85   | 45    | 20,52   | 64    | 11,35   | 83    | 3,80    |
| 6     | 41,07         | 26    | 30,33   | 46    | 20,02   | 65    | 10,88   | 84    | 3,58    |
| 7     | 41,03         | 27    | 29,82   | 47    | 19,51   | 66    | 10,42   | 85    | 3,37    |
| 8     | 40,79         | 28    | 29,30   | 48    | 19,00   | 67    | 9,96    | 86    | 3,19    |
| 9     | 40,36         | 29    | 28,79   | 49    | 18,49   | 68    | 9,50    | 87    | 3,01    |
| 10    | 39,78         | 30    | 28,27   | 50    | 17,99   | 69    | 9,05    | 88    | 2,86    |
| 11    | 39,14         | 31    | 27,76   | 51    | 17,50   | 70    | 8,60    | 89    | 2,66    |
| 12    | 38,49         | 32    | 27,24   | 52    | 17,02   | 71    | 8,17    | 90    | 2,41    |
| 13    | 37,83         | 33    | 26,72   | 53    | 16,54   | 72    | 7,74    | 91    | 2,09    |
| 14    | 37,17         | 34    | 26,20   | 54    | 16,06   | 73    | 7,33    | 92    | 1,75    |
| 15    | 36,51         | 35    | 25,68   | 55    | 15,58   | 74    | 6,92    | 93    | 1,37    |
| 16    | 35,85         | 36    | 25,16   | 56    | 15,10   | 75    | 6,54    | 94    | 1,05    |
| 17    | 35,20         | 37    | 24,64   | 57    | 14,63   | 76    | 6,18    | 95    | 0,75    |
| 18    | 34,58         | 38    | 24,12   | 58    | 14,15   | 77    | 5,83    | 96    | 0,50    |
| 19    | 33,99         | 39    | 23,60   |       |         |       |         |       |         |

These kind of tables may be applied to a variety of uses; for instance,

1. If it be demanded, what chance a person of 35 years has to live 10 years longer? from 4010, the number of persons living at 35 years of age in table 8, subtract 3248, the number of persons living at 45 years of age, and the remainder, 762, is the number of persons that died during these 10 years; and the probability or chance that the person in the question shall live these 10 years, is as 3248 to 762, or  $4\frac{1}{4}$  to 1.

2. To find to what year a person, of 30 years of age, has an equal chance of arriving before he dies. The number of that age in table 8 is 4385, the half whereof is 2192, which is found in the table between 58 and 59 years; so that a person of 30 years has an equal chance of living between 28 and 29 years longer.

3. The probability, by table 8, that a person, aged 20, shall live 10 years, is  $\frac{4385}{5132}$ . That a person, aged 30, shall live 10 years, is  $\frac{3635}{4385}$ . That they shall both live 10 years, is  $\frac{4385 \times 3635}{5132 \times 4385}$  or  $\frac{3635}{5132}$ . That they shall not both live 10 years, but that one or other of them will die previous thereto, is  $\frac{3635}{5132}$  subtracted from unity, or  $\frac{1497}{5132}$ .

The probability that one or other of two lives, aged 20 and 30, will continue 10 years, is equal to  $\frac{3635}{5132}$  subtracted from  $\frac{37883045}{22503820}$  (or from the sum of the two quantities  $\frac{4385}{5132}$  and  $\frac{3635}{4385}$ ) which leaves  $\frac{21943570}{22503820}$  for the probability required. The probability that both the lives shall fail in 10 years, is  $\left(1 - \frac{4385}{5132}\right) \times \left(1 - \frac{3635}{4385}\right) = \frac{147 \times 750}{5132 \times 4385} = \frac{560250}{22503820}$

4. To find the probability that three persons, whose ages are 40, 50 and 60 respectively, shall be all living 10 years hence.

First, that one of the age of 40 shall live 10 years, the probability is, by table 8,  $\frac{2857}{3635}$ ; that one of 50 lives 10 years, is  $\frac{2038}{2857}$ , and that one of 60 survives that term, is  $\frac{1232}{2038}$ . The product of these is  $\frac{2857 \times 2038 \times 1232}{3635 \times 2857 \times 2038} = \frac{1232}{3635} = \frac{1}{3}$  nearly; and consequently the odds are 2 to 1 that they are not all living 10 years hence.

5. To compute the number of inhabitants in any place. Suppose the number born annually be 200, this multiplied by 25,18, the expectation of an infant just born, by table 9, gives 5036, the answer.

In large towns it appears that a greater proportion of the inhabitants die annually than in small ones. In London, this proportion is at the highest, 1 in  $20\frac{1}{4}$ . In Norwich, 1 in  $24\frac{1}{2}$ . In Northampton, 1 in  $26\frac{2}{5}$ . In the parish of Newbury, Berks, 1 in  $27\frac{1}{2}$ . In the contiguous parish of Speen, 1 in 31. According to Graunt's account of a parish in Hampshire, 1 in 50. In the parish of Ackworth, Yorkshire, 1 in 47.

In 1098 country parishes mentioned by Sulmilch, the annual average of deaths, for six years, was 1 in 43. In 106 other parishes mentioned by him, 1 in 50. In the dukedom of Wurtemberg, Mr. Sulmilch says, 1 in 32 had died annually on an average for five years. In another province, which he mentions, 1 in 33 died annually.

From these facts he concludes, that, taking a whole country in gross, including all cities and villages, mankind enjoy among them about 32 or 33 years each of existence.

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*To find the value of a life annuity of £1.*

Look in table 8 for the number of persons represented as living at one year more than the age given; and by table 1 find the present value of £1 certain, to be received at the end of one year, and their product, divided by the number of persons represented as living at the age given, will produce the present value of the first year's payment of the annuity of £1, which is to be made to the purchaser when he shall be one year older. In like manner proceed to the end of the table, and the sum of all the values will be the worth of the annuity.

EXAMPLE.

What is the value of an annuity of £1, for the life of a purchaser of 80 years of age?

It appears by table 8, that out of 469 persons, of the age of 80 years, all living at the same time, 406 will live to the age of 81 years. And by table 1, the present value of £1 certain, to be received at the end of 1 year, interest at 5 per cent. is ,952381 of a pound.

Therefore  $\frac{406 \times ,952381}{469} = ,82445$ , value of the first year's payment of the annuity.

In like manner it appears, that of the original number of 469 persons, of the age of 80 years, there will be

|                                           |   |   |      |
|-------------------------------------------|---|---|------|
| 346 persons living at the age of 82 years |   |   |      |
| And 289                                   | — | — | 83 — |
| 234                                       | — | — | 84 — |
| 186                                       | — | — | 85 — |
| 145                                       | — | — | 86 — |
| 111                                       | — | — | 87 — |
| 83                                        | — | — | 88 — |
| 62                                        | — | — | 89 — |
| 46                                        | — | — | 90 — |
| 34                                        | — | — | 91 — |
| 24                                        | — | — | 92 — |
| 16                                        | — | — | 93 — |
| 9                                         | — | — | 94 — |
| 4                                         | — | — | 95 — |
| 1                                         | — | — | 96 — |

And by table 1 it appears, that when the interest is 5 per cent. the present value of £1 certain, payable at the end of

|                     |      |        |
|---------------------|------|--------|
|                     |      | £      |
| 2 years, is         |      | ,90700 |
| And at the end of 3 | —    | ,86380 |
| —                   | 4 —  | ,82270 |
| —                   | 5 —  | ,78350 |
| —                   | 6 —  | ,74620 |
| —                   | 7 —  | ,71068 |
| —                   | 8 —  | ,67680 |
| —                   | 9 —  | ,64460 |
| —                   | 10 — | ,61390 |
| —                   | 11 — | ,58468 |
| —                   | 12 — | ,55683 |
| —                   | 13 — | ,53032 |
| —                   | 14 — | ,50506 |
| —                   | 15 — | ,48101 |
| —                   | 16 — | ,45811 |

Therefore the value of the second year's rent, or payment of £1, which is to be received by the purchaser when he is 82 years old,

$$\text{is } \frac{346 \times ,9070}{469} = ,669130$$

$$\text{And the value of the 3d year's rent } \frac{289 \times ,8638}{469} = ,532277$$

$$4\text{th ditto } \frac{234 \times ,8227}{469} = ,410472$$

$$5\text{th ditto } \frac{186 \times ,7835}{469} = ,310727$$

$$\text{Value of the 6th year's rent } \frac{145 \times ,7462}{469} = ,230701$$

$$7\text{th ditto } \frac{111 \times ,71068}{469} = ,168199$$

$$8\text{th ditto } \frac{83 \times ,6768}{469} = ,119774$$

$$9\text{th ditto } \frac{62 \times ,6446}{469} = ,085213$$

$$10\text{th ditto } \frac{46 \times ,6139}{469} = ,060211$$

$$11\text{th ditto } \frac{34 \times ,58468}{469} = ,042386$$

$$12\text{th ditto } \frac{24 \times ,55683}{469} = ,028494$$

$$13\text{th ditto } \frac{16 \times ,53032}{469} = ,018091$$

$$14\text{th ditto } \frac{9 \times ,50506}{469} = ,009691$$

$$15\text{th ditto } \frac{4 \times ,48101}{469} = ,004115$$

$$16\text{th ditto } \frac{1 \times ,45811}{469} = ,000978$$

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2,690459

Add 1st year's payment ,824450

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Answer, as per Table 10.. 3,514909

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N. B. *The process in finding the value of annuities on a number of single or joint lives in succession, may be considerably abridged by deducing the value of an annuity, on the next younger life, from the value of one on a life or lives, each one year older, as per the following method.*

A computation of the values of an annuity of £1, for every different year of human life, from the age of 95 years to any younger age; interest reckoned at 5 per cent. and the probabilities of the duration of life, are such as they are represented to be in table 8.

*“ It appears that of four persons, aged 95, living at the same time, only one will live to the age of 96, and that the survivor at 96 years of age will die before he is 97. If therefore a man were to grant to four old persons, of the age of 95 years, annuities of £1 a year each for their lives, he would, at the end of the first year, have only one payment of one of the said annuities to make, and he would never after have to make another, because all the grantees would be dead before the end of the second year.*

*“ And that the grantor might be neither a gainer nor a loser by granting the annuities, it would be necessary that he should receive from the grantees, at the time of making the grants, the present value of the only payment of £1 which he would have to make to the survivor at the end of the first year; which present value is the sum of  $\frac{1}{1,05}$ , interest being 5 per cent. and consequently he ought to receive from each of the said grantees one-fourth of that sum, or  $\frac{1}{4} \times \frac{1}{1,05}$ , or  $\frac{1}{4} \times ,95238 = 0,238$ . Therefore, if the grantor were to make only one such grant of an annuity of £1 a year to a person of the age of 95 years, for his life, he ought to receive, as the price of such single grant, the same sum of £0,238; or the value of an annuity of £1 a year, for a life of 95 years, is 0,238, as per table 10.”*

*“ Let  $r$  be the sum of £1 together with its interest for one year, and  $A$  the value of an annuity of £1 for the life last found, and  $B$  the number of persons represented in table 8 as living at that age, and  $C$  the number of persons represented as living at the given age; and the values of the like annuities, for all younger lives, may be found by the continual application of the expression  $\frac{1}{r} \times \frac{B}{C} \times \overline{1 + A}$ .”*

Because there are 4 persons represented as living at the age of 95 years, and 9 persons living at the age of 94 years, the value of an annuity of £1, for a life of 94, is  $\frac{1}{1,05} \times \frac{4}{9} \times \overline{1 + 0,238} = 0,524$ .

And the value of an annuity of £1, for a life of 93, is  $\frac{1}{1,05} \times \frac{9}{16}$   
 $\times \frac{1}{1 + 0,524} = 0,816.$

And for a life of 92, it is  $\frac{1}{1,05} \times \frac{16}{24} \times 1,816 = 1,153$

$$\text{---} \quad 91 \quad \text{---} \quad \frac{1}{1,05} \times \frac{24}{34} \times 2,153 = 1,447$$

$$\text{---} \quad 90 \quad \text{---} \quad \frac{1}{1,05} \times \frac{34}{46} \times 2,447 = 1,723$$

$$\text{---} \quad 89 \quad \text{---} \quad \frac{1}{1,05} \times \frac{46}{62} \times 2,723 = 1,924$$

$$\text{---} \quad 88 \quad \text{---} \quad \frac{1}{1,05} \times \frac{62}{83} \times 2,924 = 2,080$$

$$\text{---} \quad 87 \quad \text{---} \quad \frac{1}{1,05} \times \frac{83}{111} \times 3,080 = 2,193$$

$$\text{---} \quad 86 \quad \text{---} \quad \frac{1}{1,05} \times \frac{111}{145} \times 3,193 = 2,328$$

$$\text{---} \quad 85 \quad \text{---} \quad \frac{1}{1,05} \times \frac{145}{186} \times 3,328 = 2,471$$

$$\text{---} \quad 84 \quad \text{---} \quad \frac{1}{1,05} \times \frac{186}{234} \times 3,471 = 2,627$$

$$\text{---} \quad 83 \quad \text{---} \quad \frac{1}{1,05} \times \frac{234}{289} \times 3,627 = 2,797$$

$$\text{---} \quad 82 \quad \text{---} \quad \frac{1}{1,05} \times \frac{289}{346} \times 3,797 = 3,020$$

$$\text{---} \quad 81 \quad \text{---} \quad \frac{1}{1,05} \times \frac{346}{406} \times 4,020 = 3,263$$

$$\text{---} \quad 80 \quad \text{---} \quad \frac{1}{1,05} \times \frac{406}{469} \times 4,263 = 3,515$$

$$\text{---} \quad 79 \quad \text{---} \quad \frac{1}{1,05} \times \frac{469}{534} \times 4,515 = 3,776$$

$$\text{---} \quad 78 \quad \text{---} \quad \frac{1}{1,05} \times \frac{534}{602} \times 4,776 = 4,035$$

$$\text{---} \quad 77 \quad \text{---} \quad \frac{1}{1,05} \times \frac{602}{675} \times 5,035 = 4,277$$

$$\text{---} \quad 76 \quad \text{---} \quad \frac{1}{1,05} \times \frac{675}{752} \times 5,277 = 4,511$$

$$\text{---} \quad 75 \quad \text{---} \quad \frac{1}{1,05} \times \frac{752}{832} \times 5,511 = 4,744$$

Annuity for a life of 74 years  $\frac{1}{1,05} \times \frac{832}{912} \times 5,744 = 4,990$

$$\text{---} \quad 73 \quad - \quad \frac{1}{1,05} \times \frac{912}{992} \times 5,990 = 5,245$$

$$\text{---} \quad 72 \quad - \quad \frac{1}{1,05} \times \frac{992}{1072} \times 6,245 = 5,504$$

$$\text{---} \quad 71 \quad - \quad \frac{1}{1,05} \times \frac{1072}{1152} \times 6,504 = 5,764$$

$$\text{---} \quad 70 \quad - \quad \frac{1}{1,05} \times \frac{1152}{1232} \times 6,764 = 6,023$$

$$\text{---} \quad 69 \quad - \quad \frac{1}{1,05} \times \frac{1232}{1312} \times 7,023 = 6,281$$

$$\text{---} \quad 68 \quad - \quad \frac{1}{1,05} \times \frac{1312}{1392} \times 7,281 = 6,536$$

$$\text{---} \quad 67 \quad - \quad \frac{1}{1,05} \times \frac{1392}{1472} \times 7,536 = 6,787$$

$$\text{---} \quad 66 \quad - \quad \frac{1}{1,05} \times \frac{1472}{1552} \times 7,787 = 7,034$$

$$\text{---} \quad 65 \quad - \quad \frac{1}{1,05} \times \frac{1552}{1632} \times 8,034 = 7,276$$

$$\text{---} \quad 64 \quad - \quad \frac{1}{1,05} \times \frac{1632}{1712} \times 8,276 = 7,514$$

$$\text{---} \quad 63 \quad - \quad \frac{1}{1,05} \times \frac{1712}{1793} \times 8,514 = 7,742$$

$$\text{---} \quad 62 \quad - \quad \frac{1}{1,05} \times \frac{1793}{1874} \times 8,742 = 7,966$$

$$\text{---} \quad 61 \quad - \quad \frac{1}{1,05} \times \frac{1874}{1956} \times 8,966 = 8,181$$

$$\text{---} \quad 60 \quad - \quad \frac{1}{1,05} \times \frac{1956}{2038} \times 9,181 = 8,392$$

$$\text{---} \quad 59 \quad - \quad \frac{1}{1,05} \times \frac{2038}{2120} \times 9,392 = 8,599$$

$$\text{---} \quad 58 \quad - \quad \frac{1}{1,05} \times \frac{2120}{2202} \times 9,599 = 8,801$$

$$\text{---} \quad 57 \quad - \quad \frac{1}{1,05} \times \frac{2202}{2284} \times 9,801 = 8,999$$

$$\text{---} \quad 56 \quad - \quad \frac{1}{1,05} \times \frac{2284}{2366} \times 9,999 = 9,193$$

|                                |                                                                    |
|--------------------------------|--------------------------------------------------------------------|
| Annuity for a life of 55 years | $\frac{1}{1,05} \times \frac{2366}{2445} \times 10,193 = 9,382$    |
| — 54                           | $— \frac{1}{1,05} \times \frac{2448}{2530} \times 10,382 = 9,567$  |
| — 53                           | $— \frac{1}{1,05} \times \frac{2530}{2612} \times 10,567 = 9,748$  |
| — 52                           | $— \frac{1}{1,05} \times \frac{2612}{2694} \times 10,748 = 9,925$  |
| — 51                           | $— \frac{1}{1,05} \times \frac{2694}{2776} \times 10,925 = 10,097$ |
| — 50                           | $— \frac{1}{1,05} \times \frac{2776}{2857} \times 11,097 = 10,269$ |
| — 49                           | $— \frac{1}{1,05} \times \frac{2857}{2936} \times 11,269 = 10,443$ |
| — 48                           | $— \frac{1}{1,05} \times \frac{2936}{3014} \times 11,443 = 10,616$ |
| — 47                           | $— \frac{1}{1,05} \times \frac{3014}{3092} \times 11,616 = 10,784$ |
| — 46                           | $— \frac{1}{1,05} \times \frac{3092}{3170} \times 11,784 = 10,947$ |
| — 45                           | $— \frac{1}{1,05} \times \frac{3170}{3248} \times 11,947 = 11,105$ |
| — 44                           | $— \frac{1}{1,05} \times \frac{3248}{3326} \times 12,105 = 11,258$ |
| — 43                           | $— \frac{1}{1,05} \times \frac{3326}{3404} \times 12,258 = 11,407$ |
| — 42                           | $— \frac{1}{1,05} \times \frac{3404}{3482} \times 12,407 = 11,551$ |
| — 41                           | $— \frac{1}{1,05} \times \frac{3482}{3559} \times 12,551 = 11,695$ |
| — 40                           | $— \frac{1}{1,05} \times \frac{3559}{3635} \times 12,695 = 11,837$ |
| — 39                           | $— \frac{1}{1,05} \times \frac{3635}{3710} \times 12,837 = 11,979$ |
| — 38                           | $— \frac{1}{1,05} \times \frac{3710}{3785} \times 12,979 = 12,116$ |
| — 37                           | $— \frac{1}{1,05} \times \frac{3785}{3860} \times 13,116 = 12,249$ |

Annuity for a life of 36 years  $\frac{1}{1,05} \times \frac{3800}{3035} \times 13,249 = 12,377$

— 35 —  $\frac{1}{1,05} \times \frac{3935}{4010} \times 13,377 = 12,502$

— 34 —  $\frac{1}{1,05} \times \frac{4010}{4085} \times 13,502 = 12,623$

— 33 —  $\frac{1}{1,05} \times \frac{4085}{4160} \times 13,623 = 12,740$

— 32 —  $\frac{1}{1,05} \times \frac{4160}{4235} \times 13,740 = 12,854$

— 31 —  $\frac{1}{1,05} \times \frac{4235}{4310} \times 13,854 = 12,965$

— 30 —  $\frac{1}{1,05} \times \frac{4310}{4385} \times 13,965 = 13,072$

— 29 —  $\frac{1}{1,05} \times \frac{4385}{4460} \times 14,072 = 13,177$

— 28 —  $\frac{1}{1,05} \times \frac{4460}{4535} \times 14,177 = 13,278$

— 27 —  $\frac{1}{1,05} \times \frac{4535}{4610} \times 14,278 = 13,377$

— 26 —  $\frac{1}{1,05} \times \frac{4610}{4685} \times 14,377 = 13,473$

— 25 —  $\frac{1}{1,05} \times \frac{4685}{4760} \times 14,473 = 13,567$

— 24 —  $\frac{1}{1,05} \times \frac{4760}{4835} \times 14,567 = 13,658$

— 23 —  $\frac{1}{1,05} \times \frac{4835}{4910} \times 14,658 = 13,746$

— 22 —  $\frac{1}{1,05} \times \frac{4910}{4985} \times 14,746 = 13,833$

— 21 —  $\frac{1}{1,05} \times \frac{4985}{5060} \times 14,833 = 13,917$

— 20 —  $\frac{1}{1,05} \times \frac{5060}{5132} \times 14,917 = 14,007$

— 19 —  $\frac{1}{1,05} \times \frac{5132}{5199} \times 15,007 = 14,108$

— 18 —  $\frac{1}{1,05} \times \frac{5199}{5262} \times 15,108 = 14,217$

$$\text{Annuity for a life of 17 years } \frac{1}{1,05} \times \frac{5282}{5320} \times 15,217 = 14,334$$

$$\text{---} \quad 16 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5320}{5373} \times 15,334 = 14,460$$

$$\text{---} \quad 15 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5373}{5423} \times 15,460 = 14,588$$

$$\text{---} \quad 14 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5423}{5473} \times 15,588 = 14,710$$

$$\text{---} \quad 13 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5473}{5523} \times 15,710 = 14,826$$

$$\text{---} \quad 12 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5523}{5573} \times 15,826 = 14,937$$

$$\text{---} \quad 11 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5573}{5623} \times 15,937 = 15,043$$

$$\text{---} \quad 10 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5623}{5675} \times 16,043 = 15,139$$

$$\text{---} \quad 9 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5675}{5735} \times 16,139 = 15,210$$

$$\text{---} \quad 8 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5735}{5815} \times 16,210 = 15,226$$

$$\text{---} \quad 7 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5815}{5925} \times 16,226 = 15,166$$

$$\text{---} \quad 6 \quad \text{---} \quad \frac{1}{1,05} \times \frac{5925}{6065} \times 16,167 = 15,041$$

$$\text{---} \quad 5 \quad \text{---} \quad \frac{1}{1,05} \times \frac{6065}{6249} \times 16,041 = 14,827$$

$$\text{---} \quad 4 \quad \text{---} \quad \frac{1}{1,05} \times \frac{6249}{6446} \times 15,827 = 14,613$$

$$\text{---} \quad 3 \quad \text{---} \quad \frac{1}{1,05} \times \frac{6446}{6781} \times 15,613 = 14,135$$

$$\text{---} \quad 2 \quad \text{---} \quad \frac{1}{1,05} \times \frac{6781}{7283} \times 15,135 = 13,420$$

$$\text{---} \quad 1 \quad \text{---} \quad \frac{1}{1,05} \times \frac{7283}{8650} \times 14,420 = 11,563$$

$$\text{And for a life from birth, } \frac{1}{1,05} \times \frac{8650}{11850} \times 12,563 = 8,883$$

These computations of the values of an annuity of £1 a year, at 5 per cent. for every year of human life, from the age of 95 down to birth, are ranged in regular order in the following table.

TABLE X.

Shewing the value of an annuity on a single life, at every age, according to the probabilities of the duration of human life at Northampton. See table 8.

| Age.   | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Age. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|--------|-------------------------|-------------------------|-------------------------|------|-------------------------|-------------------------|-------------------------|
| Birth. | 12,270                  | 10,327                  | 8,883                   | 40   | 14,848                  | 13,197                  | 11,837                  |
| 1      | 16,021                  | 13,465                  | 11,563                  | 41   | 14,620                  | 13,018                  | 11,695                  |
| 2      | 18,599                  | 15,633                  | 13,420                  | 42   | 14,391                  | 12,838                  | 11,551                  |
| 3      | 19,575                  | 16,462                  | 14,135                  | 43   | 14,162                  | 12,657                  | 11,407                  |
| 4      | 20,210                  | 17,010                  | 14,613                  | 44   | 13,929                  | 12,472                  | 11,258                  |
| 5      | 20,473                  | 17,248                  | 14,827                  | 45   | 13,692                  | 12,283                  | 11,105                  |
| 6      | 20,727                  | 17,482                  | 15,041                  | 46   | 13,450                  | 12,089                  | 10,947                  |
| 7      | 20,853                  | 17,611                  | 15,166                  | 47   | 13,203                  | 11,890                  | 10,784                  |
| 8      | 20,885                  | 17,662                  | 15,226                  | 48   | 12,951                  | 11,685                  | 10,616                  |
| 9      | 20,812                  | 17,625                  | 15,210                  | 49   | 12,693                  | 11,475                  | 10,443                  |
| 10     | 20,663                  | 17,523                  | 15,139                  | 50   | 12,436                  | 11,264                  | 10,269                  |
| 11     | 20,480                  | 17,393                  | 15,043                  | 51   | 12,183                  | 11,057                  | 10,097                  |
| 12     | 20,283                  | 17,251                  | 14,937                  | 52   | 11,930                  | 10,849                  | 9,925                   |
| 13     | 20,081                  | 17,103                  | 14,826                  | 53   | 11,674                  | 10,637                  | 9,748                   |
| 14     | 19,872                  | 16,950                  | 14,710                  | 54   | 11,414                  | 10,421                  | 9,567                   |
| 15     | 19,657                  | 16,791                  | 14,588                  | 55   | 11,150                  | 10,201                  | 9,382                   |
| 16     | 19,435                  | 16,625                  | 14,460                  | 56   | 10,882                  | 9,977                   | 9,193                   |
| 17     | 19,218                  | 16,462                  | 14,334                  | 57   | 10,611                  | 9,749                   | 8,999                   |
| 18     | 19,013                  | 16,309                  | 14,217                  | 58   | 10,337                  | 9,516                   | 8,801                   |
| 19     | 18,820                  | 16,167                  | 14,108                  | 59   | 10,058                  | 9,280                   | 8,599                   |
| 20     | 18,638                  | 16,033                  | 14,007                  | 60   | 9,777                   | 9,039                   | 8,392                   |
| 21     | 18,470                  | 15,912                  | 13,917                  | 61   | 9,493                   | 8,795                   | 8,181                   |
| 22     | 18,311                  | 15,797                  | 13,833                  | 62   | 9,205                   | 8,547                   | 7,966                   |
| 23     | 18,148                  | 15,680                  | 13,746                  | 63   | 8,910                   | 8,291                   | 7,742                   |
| 24     | 17,983                  | 15,560                  | 13,658                  | 64   | 8,611                   | 8,030                   | 7,514                   |
| 25     | 17,814                  | 15,438                  | 13,567                  | 65   | 8,304                   | 7,761                   | 7,276                   |
| 26     | 17,642                  | 15,312                  | 13,473                  | 66   | 7,994                   | 7,488                   | 7,034                   |
| 27     | 17,467                  | 15,184                  | 13,377                  | 67   | 7,682                   | 7,211                   | 6,787                   |
| 28     | 17,289                  | 15,053                  | 13,278                  | 68   | 7,367                   | 6,930                   | 6,536                   |
| 29     | 17,107                  | 14,918                  | 13,177                  | 69   | 7,051                   | 6,647                   | 6,281                   |
| 30     | 16,922                  | 14,781                  | 13,072                  | 70   | 6,734                   | 6,361                   | 6,023                   |
| 31     | 16,732                  | 14,639                  | 12,965                  | 71   | 6,418                   | 6,075                   | 5,764                   |
| 32     | 16,540                  | 14,495                  | 12,854                  | 72   | 6,103                   | 5,790                   | 5,504                   |
| 33     | 16,343                  | 14,347                  | 12,740                  | 73   | 5,794                   | 5,507                   | 5,245                   |
| 34     | 16,142                  | 14,195                  | 12,623                  | 74   | 5,491                   | 5,230                   | 4,990                   |
| 35     | 15,938                  | 14,039                  | 12,502                  | 75   | 5,199                   | 4,962                   | 4,744                   |
| 36     | 15,729                  | 13,880                  | 12,377                  | 76   | 4,925                   | 4,710                   | 4,511                   |
| 37     | 15,515                  | 13,716                  | 12,249                  | 77   | 4,652                   | 4,457                   | 4,277                   |
| 38     | 15,298                  | 13,548                  | 12,116                  | 78   | 4,372                   | 4,197                   | 4,035                   |
| 39     | 15,075                  | 13,375                  | 11,979                  | 79   | 4,077                   | 3,921                   | 3,776                   |

| Age. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Age. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|------|-------------------------|-------------------------|-------------------------|------|-------------------------|-------------------------|-------------------------|
| 80   | 3,718                   | 3,643                   | 3,515                   | 89   | 2,015                   | 1,967                   | 1,924                   |
| 81   | 3,499                   | 3,377                   | 3,263                   | 90   | 1,794                   | 1,758                   | 1,723                   |
| 82   | 3,229                   | 3,122                   | 3,020                   | 91   | 1,501                   | 1,474                   | 1,447                   |
| 83   | 2,982                   | 2,887                   | 2,797                   | 92   | 1,190                   | 1,171                   | 1,153                   |
| 84   | 2,793                   | 2,708                   | 2,627                   | 93   | 0,839                   | 0,827                   | 0,816                   |
| 85   | 2,620                   | 2,543                   | 2,471                   | 94   | 0,536                   | 0,530                   | 0,524                   |
| 86   | 2,461                   | 2,393                   | 2,328                   | 95   | 0,242                   | 0,240                   | 0,238                   |
| 87   | 2,312                   | 2,251                   | 2,193                   | 96   | 0,000                   | 0,000                   | 0,000                   |
| 88   | 2,185                   | 2,131                   | 2,080                   |      |                         |                         |                         |

The values of annuities in this table suppose the payments to be made yearly, and to begin at the end of a year.

If the payments are to be half yearly, and to be made at the end of every half year from the time of purchase, their value will be increased about one-fifth of a year's purchase.

### EXAMPLES.

1. A person of 50 years would purchase an annuity for life of £200 ; what ready money ought he to pay, reckoning interest at 5 per cent. ?

By the table, the value of £1 is 10,269

Multiply by 200

*Answer*  $2053,800 = £2053. 16s.$

2. An estate, value £500, falls to a person on the extinction of a life aged 65 ; what is the present value of the same, reckoning interest at 4 per cent. ?

Interest being 4 per cent. the perpetuity, by table 2, is 25,000

Deduct the value of £1 annuity for a life of 65.. 7,761

17,239

Then as 25 : 17,239 :: 500 : 34,478 = £344. 15s. 7d. the *Answer*.

Or the rent of the estate, which at 4 per cent is £20, multiplied by 17,239, gives 344,78, the answer as before.

*To determine the annuity that ought to be received for any given sum, divide such sum by the number of years' purchase. Thus, if a person, aged 50 wished to lay out £2000 in the purchase of an annuity, interest 5 per cent. the annuity will be found by dividing 2000 by 10,269; whence 194,76, or £194. 15s. 2d. will be the annuity required.*

“An annuity for a given life is not of equal value with an annuity certain for as many years as the life has an equal chance of existence, the latter value is always greater than the former; the reason is, that, though a number of single or joint lives of given ages, will among them enjoy a given number of years, yet some of them will live a much greater and some a much less number of years.

“For instance, suppose 100 marriages among persons all of an equal age, and suppose them, one with another, to exist 20 years, an office bound to pay annuities to such marriages, during their continuance, might reckon upon making twenty payments for each marriage; but many of these payments would not be made till the end of 30, and some not till the end of 40 years; it is therefore clear, that twenty payments, so made, cannot be worth as much as the same number of payments made regularly, at the end of every year, till in 20 years they are all made.”

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To find the value of an annuity of £1, on the joint continuance of two lives, having the same common age; one life failing, the annuity to cease.

#### RULE.

Look in table 8 for the number of persons represented as living at one year more than the age given, square that number, then multiply by the present value of £1 certain to be received at the end of one year, found by table 1, and that product, divided by the square of the number of persons represented as living at the age given, will produce the present value of the first year's payment of the annuity of £1, which is to be made to the purchaser at the end of one year from the time of granting it, provided both he and his companion are then alive.

In like manner proceed to the end of the table, and the sum of all the values will be the worth of the annuity.

## QUESTIONS.

1. What is the value of an annuity of £1, on the joint continuance of two lives, each 80 years, at 5 per cent.?

It appears by table 8, that

|                                         |   |   |    |
|-----------------------------------------|---|---|----|
| 406 persons are living at the age of 81 |   |   |    |
| 346                                     | — | — | 82 |
| 289                                     | — | — | 83 |
| 234                                     | — | — | 84 |
| 186                                     | — | — | 85 |
| 145                                     | — | — | 86 |
| 111                                     | — | — | 87 |
| 83                                      | — | — | 88 |
| 62                                      | — | — | 89 |
| 46                                      | — | — | 90 |
| 34                                      | — | — | 91 |
| 24                                      | — | — | 92 |
| 16                                      | — | — | 93 |
| 9                                       | — | — | 94 |
| 4                                       | — | — | 95 |
| 1                                       | — | — | 96 |

And by table 1 it appears, that when the interest is 5 per cent. the present value of £1 certain, payable

|                                 |    |   |        |
|---------------------------------|----|---|--------|
| At the end of 1 year, is ,95238 |    |   |        |
| —                               | 2  | — | ,90700 |
| —                               | 3  | — | ,86380 |
| —                               | 4  | — | ,82270 |
| —                               | 5  | — | ,78350 |
| —                               | 6  | — | ,74620 |
| —                               | 7  | — | ,71068 |
| —                               | 8  | — | ,67680 |
| —                               | 9  | — | ,64460 |
| —                               | 10 | — | ,61390 |
| —                               | 11 | — | ,58468 |
| —                               | 12 | — | ,55683 |
| —                               | 13 | — | ,53032 |
| —                               | 14 | — | ,50506 |
| —                               | 15 | — | ,48101 |
| —                               | 16 | — | ,45811 |

|                                       |             |                                              |        |
|---------------------------------------|-------------|----------------------------------------------|--------|
| Then $406 \times 406 \times ,95238 =$ | 156986,6745 | } which divided by $\frac{469 \times 469}{}$ |        |
|                                       |             | gives value of 1st year's rent               |        |
| $346 \times 346 \times ,90700 =$      | 108582,4120 | —                                            | 2d —   |
| $289 \times 289 \times ,86380 =$      | 72145,4398  | —                                            | 3d —   |
| $234 \times 234 \times ,82270 =$      | 45047,7612  | —                                            | 4th —  |
| $186 \times 186 \times ,78350 =$      | 27105,9660  | —                                            | 5th —  |
| $145 \times 145 \times ,74620 =$      | 15688,8550  | —                                            | 6th —  |
| $111 \times 111 \times ,71068 =$      | 8756,2882   | —                                            | 7th —  |
| $83 \times 83 \times ,67680 =$        | 4662,4752   | —                                            | 8th —  |
| $62 \times 62 \times ,64460 =$        | 2477,8424   | —                                            | 9th —  |
| $46 \times 46 \times ,61390 =$        | 1299,0124   | —                                            | 10th — |
| $34 \times 34 \times ,58468 =$        | 675,8900    | —                                            | 11th — |
| $24 \times 24 \times ,55683 =$        | 320,7340    | —                                            | 12th — |
| $16 \times 16 \times ,53032 =$        | 135,7619    | —                                            | 13th — |
| $9 \times 9 \times ,50506 =$          | 40,9098     | —                                            | 14th — |
| $4 \times 4 \times ,48101 =$          | 7,6961      | —                                            | 15th — |
| $1 \times 1 \times ,45811 =$          | ,4581       | —                                            | 16th — |
| <hr/> Total                           |             | <hr/> 443934,1766 <hr/>                      |        |

Which divided by  $\frac{469 \times 469}{}$  gives 2,018, value of the annuity, as in the following table.

2. What is the value of an annuity of £1, on the joint continuance of two lives, each 85, at 5 per cent. ?

By table 8, there are

By table 1, the annuity certain at the end of

|                                     |                  |
|-------------------------------------|------------------|
| 115 persons living at the age of 86 | 1 year is ,95238 |
| 111 — — — 87                        | 2 — ,90700       |
| 83 — — — 88                         | 3 — ,86380       |
| 62 — — — 89                         | 4 — ,82270       |
| 46 — — — 90                         | 5 — ,78350       |
| 34 — — — 91                         | 6 — ,74620       |
| 24 — — — 92                         | 7 — ,71068       |
| 16 — — — 93                         | 8 — ,67680       |
| 9 — — — 94                          | 9 — ,64460       |
| 4 — — — 95                          | 10 — ,61390      |
| 1 — — — 96                          | 11 — ,58468      |

$$\text{Then } 145 \times 145 \times ,95238 = 20023,789$$

$$111 \times 111 \times ,90700 = 11175,147$$

$$83 \times 83 \times ,86380 = 5950,718$$

$$62 \times 62 \times ,82270 = 3162,458$$

$$46 \times 46 \times ,78350 = 1657,886$$

$$34 \times 34 \times ,74620 = 862,607$$

$$24 \times 24 \times ,71068 = 409,351$$

$$16 \times 16 \times ,67680 = 173,260$$

$$9 \times 9 \times ,64460 = 52,212$$

$$4 \times 4 \times ,61390 = 9,822$$

$$1 \times 1 \times ,58468 = 584$$

$186 \times 186 = 34596$ ) 43477,834(1,256 Value, as per the  
following table.

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34596

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88818

69192

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196263

172980

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232834

207576

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TABLE XI.

Shewing the value of an annuity on the joint continuance of two lives, having the same common age.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|------------------------|
| 1—1   | 9,490                   | 8,252                   | 7,287                   | 42—42 | 10,369                  | 9,491                  | 8,737                  |
| 2—2   | 12,789                  | 11,107                  | 9,793                   | 43—43 | 10,175                  | 9,326                  | 8,599                  |
| 3—3   | 14,196                  | 12,325                  | 10,862                  | 44—44 | 9,977                   | 9,160                  | 8,457                  |
| 4—4   | 15,181                  | 13,185                  | 11,621                  | 45—45 | 9,776                   | 8,990                  | 8,312                  |
| 5—5   | 15,638                  | 13,591                  | 11,984                  | 46—46 | 9,571                   | 8,815                  | 8,162                  |
| 6—6   | 16,099                  | 14,005                  | 12,358                  | 47—47 | 9,362                   | 8,637                  | 8,008                  |
| 7—7   | 16,375                  | 14,224                  | 12,596                  | 48—48 | 9,149                   | 8,453                  | 7,849                  |
| 8—8   | 16,510                  | 14,399                  | 12,731                  | 49—49 | 8,930                   | 8,266                  | 7,686                  |
| 9—9   | 16,483                  | 14,396                  | 12,741                  | 50—50 | 8,714                   | 8,081                  | 7,522                  |
| 10—10 | 16,339                  | 14,277                  | 12,669                  | 51—51 | 8,507                   | 7,900                  | 7,366                  |
| 11—11 | 16,142                  | 14,133                  | 12,546                  | 52—52 | 8,304                   | 7,723                  | 7,213                  |
| 12—12 | 15,926                  | 13,966                  | 12,411                  | 53—53 | 8,098                   | 7,544                  | 7,056                  |
| 13—13 | 15,702                  | 13,789                  | 12,268                  | 54—54 | 7,891                   | 7,362                  | 6,897                  |
| 14—14 | 15,470                  | 13,604                  | 12,118                  | 55—55 | 7,681                   | 7,179                  | 6,735                  |
| 15—15 | 15,229                  | 13,411                  | 11,960                  | 56—56 | 7,470                   | 6,993                  | 6,571                  |
| 16—16 | 14,979                  | 13,212                  | 11,793                  | 57—57 | 7,256                   | 6,805                  | 6,404                  |
| 17—17 | 14,737                  | 13,019                  | 11,630                  | 58—58 | 7,041                   | 6,614                  | 6,234                  |
| 18—18 | 14,516                  | 12,841                  | 11,483                  | 59—59 | 6,824                   | 6,421                  | 6,062                  |
| 19—19 | 14,316                  | 12,679                  | 11,351                  | 60—60 | 6,606                   | 6,226                  | 5,888                  |
| 20—20 | 14,133                  | 12,535                  | 11,232                  | 61—61 | 6,386                   | 6,030                  | 5,712                  |
| 21—21 | 13,974                  | 12,409                  | 11,131                  | 62—62 | 6,166                   | 5,831                  | 5,533                  |
| 22—22 | 13,830                  | 12,293                  | 11,042                  | 63—63 | 5,938                   | 5,626                  | 5,347                  |
| 23—23 | 13,683                  | 12,179                  | 10,951                  | 64—64 | 5,709                   | 5,417                  | 5,158                  |
| 24—24 | 13,534                  | 12,062                  | 10,858                  | 65—65 | 5,471                   | 5,201                  | 4,960                  |
| 25—25 | 13,383                  | 11,944                  | 10,764                  | 66—66 | 5,231                   | 4,982                  | 4,759                  |
| 26—26 | 13,230                  | 11,822                  | 10,667                  | 67—67 | 4,989                   | 4,760                  | 4,555                  |
| 27—27 | 13,074                  | 11,699                  | 10,567                  | 68—68 | 4,747                   | 4,537                  | 4,348                  |
| 28—28 | 12,915                  | 11,573                  | 10,466                  | 69—69 | 4,504                   | 4,312                  | 4,140                  |
| 29—29 | 12,754                  | 11,445                  | 10,362                  | 70—70 | 4,261                   | 4,087                  | 3,930                  |
| 30—30 | 12,589                  | 11,313                  | 10,255                  | 71—71 | 4,020                   | 3,862                  | 3,719                  |
| 31—31 | 12,422                  | 11,179                  | 10,146                  | 72—72 | 3,781                   | 3,639                  | 3,510                  |
| 32—32 | 12,252                  | 11,042                  | 10,034                  | 73—73 | 3,548                   | 3,421                  | 3,304                  |
| 33—33 | 12,079                  | 10,902                  | 9,919                   | 74—74 | 3,324                   | 3,211                  | 3,105                  |
| 34—34 | 11,902                  | 10,759                  | 9,801                   | 75—75 | 3,114                   | 3,015                  | 2,917                  |
| 35—35 | 11,722                  | 10,612                  | 9,680                   | 76—76 | 2,926                   | 2,833                  | 2,750                  |
| 36—36 | 11,539                  | 10,462                  | 9,555                   | 77—77 | 2,741                   | 2,656                  | 2,583                  |
| 37—37 | 11,351                  | 10,307                  | 9,427                   | 78—78 | 2,550                   | 2,470                  | 2,410                  |
| 38—38 | 11,160                  | 10,149                  | 9,294                   | 79—79 | 2,338                   | 2,271                  | 2,217                  |
| 39—39 | 10,964                  | 9,986                   | 9,158                   | 80—80 | 2,122                   | 2,068                  | 2,018                  |
| 40—40 | 10,764                  | 9,820                   | 9,016                   | 81—81 | 1,917                   | 1,869                  | 1,827                  |
| 41—41 | 10,565                  | 9,654                   | 8,876                   | 82—82 | 1,719                   | 1,681                  | 1,642                  |

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 perCent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|------------------------|------------------------|------------------------|
| 83—83 | 1,538                   | 1,510                   | 1,472                   | 90—90 | 0,938                  | 0,922                  | 0,909                  |
| 84—84 | 1,416                   | 1,387                   | 1,357                   | 91—91 | 0,769                  | 0,756                  | 0,748                  |
| 85—85 | 1,309                   | 1,339                   | 1,256                   | 92—92 | 0,591                  | 0,583                  | 0,576                  |
| 86—86 | 1,218                   | 1,195                   | 1,171                   | 93—93 | 0,369                  | 0,365                  | 0,361                  |
| 87—87 | 1,141                   | 1,124                   | 1,098                   | 94—94 | 0,203                  | 0,201                  | 0,199                  |
| 88—88 | 1,103                   | 1,030                   | 1,063                   | 95—95 | 0,060                  | 0,060                  | 0,059                  |
| 89—89 | 1,036                   | 1,015                   | 1,001                   | 96—96 | 0,000                  | 0,000                  | 0,000                  |

## EXAMPLES.

1. An annuity of £400 depends on the joint lives of two persons, aged 30 years each, either of which failing, the annuity to cease; what is the value, reckoning interest at 4 per cent.?

Value of an annuity of £1, per table, is 11,313

Multiply by the annuity . . . 400

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*Answer* 4525,200 = £4525. 4s.

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2. A legacy of £500 is to be received on the death of either of two persons, aged 73 years each; what is the value, reckoning interest at 5 per cent.?

Interest being 5 per cent. the perpetuity, by table 2, is 20

Deduct value of £1 annuity, per the above table . . . 3,304

---

16,696

As 20 : 16,696 :: 500 : £417. 8s. *Answer.*

But if the legacy be not due till 12 months after the extinction of the lives, £417. 8s. must be divided by 1,05 (the amount of £1 in a year), and the answer will be £397. 10s. 5d.

To find the value of an annuity of £1, on the joint continuance of two lives, differing in age; one life failing, the annuity to cease.

### RULE.

Multiply the product of the number in table 8, opposite one year older than the youngest age given, and the number opposite one year older than the oldest age given, by the value of £1 certain to be received at the end of one year, and then divide by the product of the two numbers opposite the ages given; the quotient will be the first year's payment of the annuity of £1, which is to be made to the purchaser at the end of a year from the time of granting it, provided both he and his companion are then alive.

In like manner proceed to the end of the table, and the sum of all the values will be the worth of the annuity.

### QUESTION.

What is the value of an annuity of £1, on the joint continuance of two lives, one aged 75 and the other 80 years, interest 3 per cent.?

It appears by table 8, that

|                                                                   |   |   |             |   |    |
|-------------------------------------------------------------------|---|---|-------------|---|----|
| 752 persons are living at the age of 76, and 406 at the age of 81 |   |   |             |   |    |
| 675                                                               | — | — | 77, and 346 | — | 82 |
| 602                                                               | — | — | 78, and 289 | — | 83 |
| 534                                                               | — | — | 79, and 234 | — | 84 |
| 469                                                               | — | — | 80, and 186 | — | 85 |
| 406                                                               | — | — | 81, and 145 | — | 86 |
| 346                                                               | — | — | 82, and 111 | — | 87 |
| 289                                                               | — | — | 83, and 83  | — | 88 |
| 234                                                               | — | — | 84, and 62  | — | 89 |
| 186                                                               | — | — | 85, and 46  | — | 90 |
| 145                                                               | — | — | 86, and 34  | — | 91 |
| 111                                                               | — | — | 87, and 24  | — | 92 |
| 83                                                                | — | — | 88, and 16  | — | 93 |
| 62                                                                | — | — | 89, and 9   | — | 94 |
| 46                                                                | — | — | 90, and 4   | — | 95 |
| 34                                                                | — | — | 91, and 1   | — | 96 |

And it appears by table 1, when the interest of money is 3 per cent. the present value of £1 certain, payable

At the end of 1 year, is ,970874

|   |   |   |         |
|---|---|---|---------|
| — | 2 | — | ,942956 |
| — | 3 | — | ,915142 |
| — | 4 | — | ,888487 |
| — | 5 | — | ,862609 |
| — | 6 | — | ,837484 |
| — | 7 | — | ,813092 |
| — | 8 | — | ,789409 |
| — | 9 | — | ,766417 |

At the end of 10 years, is ,744094

|   |    |   |         |
|---|----|---|---------|
| — | 11 | — | ,722421 |
| — | 12 | — | ,701380 |
| — | 13 | — | ,680951 |
| — | 14 | — | ,661118 |
| — | 15 | — | ,641862 |
| — | 16 | — | ,623167 |

Then  $752 \times 406 \times ,970874 = 296419,4826$  } which divided by  $832 \times 469$ ,  
the numbers living at 75 and  
80, gives the value of the  
1st year's rent.

|                                               |      |   |
|-----------------------------------------------|------|---|
| $675 \times 346 \times ,942956 = 220227,3738$ | 2d   | — |
| $602 \times 289 \times ,915142 = 159214,5748$ | 3d   | — |
| $534 \times 234 \times ,888487 = 111021,7815$ | 4th  | — |
| $469 \times 186 \times ,862609 = 75248,8335$  | 5th  | — |
| $406 \times 145 \times ,837484 = 49302,6830$  | 6th  | — |
| $346 \times 111 \times ,813092 = 31227,6113$  | 7th  | — |
| $289 \times 83 \times ,789409 = 18935,5536$   | 8th  | — |
| $234 \times 62 \times ,766417 = 11119,1778$   | 9th  | — |
| $186 \times 46 \times ,744094 = 6366,4682$    | 10th | — |
| $145 \times 34 \times ,722421 = 3561,5355$    | 11th | — |
| $111 \times 24 \times ,701380 = 1868,4763$    | 12th | — |
| $83 \times 16 \times ,680951 = 904,3029$      | 13th | — |
| $62 \times 9 \times ,661118 = 368,9038$       | 14th | — |
| $46 \times 4 \times ,641862 = 118,1026$       | 15th | — |
| $34 \times 1 \times ,623167 = 21,1876$        | 16th | — |

985926,0488, which divided

by  $832 \times 469$  (or 390208) gives 2,526, the value as per following table.

2. What is the value of an annuity of £1, on the joint continuance of two lives, one aged 80 and the other 85 years, interest 5 per cent.?

| No. living<br>from the age<br>of 81 to 91    | No. living<br>from the age<br>of 86 to 96 | Value in<br>tab. I under<br>5 per cent.<br>from 1 year<br>to 11. |
|----------------------------------------------|-------------------------------------------|------------------------------------------------------------------|
| $406 \times 145 \times ,95238 = 56066,66947$ |                                           |                                                                  |
| $346 \times 111 \times ,90700 = 34834,24200$ |                                           |                                                                  |
| $289 \times 83 \times ,86380 = 20719,97060$  |                                           |                                                                  |
| $234 \times 62 \times ,82270 = 11935,73160$  |                                           |                                                                  |
| $186 \times 46 \times ,78350 = 6703,62600$   |                                           |                                                                  |
| $145 \times 34 \times ,74620 = 3678,76600$   |                                           |                                                                  |
| $111 \times 24 \times ,71068 = 1893,25152$   |                                           |                                                                  |
| $83 \times 16 \times ,67680 = 898,79040$     |                                           |                                                                  |
| $62 \times 9 \times ,64460 = 359,68680$      |                                           |                                                                  |
| $46 \times 4 \times ,61390 = 112,95760$      |                                           |                                                                  |
| $34 \times 1 \times ,58468 = 19,87912$       |                                           |                                                                  |

137223,57111, which divided

by  $469 \times 186$  (or 87234) gives 1,573, the value as per table 12.

TABLE XII.

Shewing the value of an annuity on the joint continuance of two lives.—Difference of age, 5 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|------------------------|
| 1—6   | 12,346                  | 10,741                  | 9,479                   | 41—46 | 10,033                  | 9,210                  | 8,497                  |
| 2—7   | 14,461                  | 12,581                  | 11,100                  | 42—47 | 9,829                   | 9,037                  | 8,350                  |
| 3—8   | 15,300                  | 13,319                  | 11,755                  | 43—48 | 9,623                   | 8,862                  | 8,200                  |
| 4—9   | 15,809                  | 13,775                  | 12,165                  | 44—49 | 9,414                   | 8,683                  | 8,046                  |
| 5—10  | 15,974                  | 13,933                  | 12,315                  | 45—50 | 9,204                   | 8,503                  | 7,891                  |
| 6—11  | 16,110                  | 14,068                  | 12,447                  | 46—51 | 8,997                   | 8,326                  | 7,737                  |
| 7—12  | 16,137                  | 14,111                  | 12,498                  | 47—52 | 8,790                   | 8,147                  | 7,582                  |
| 8—13  | 16,089                  | 14,039                  | 12,492                  | 48—53 | 8,579                   | 7,965                  | 7,424                  |
| 9—14  | 15,957                  | 13,992                  | 12,421                  | 49—54 | 8,366                   | 7,780                  | 7,262                  |
| 10—15 | 15,762                  | 13,841                  | 12,302                  | 50—55 | 8,151                   | 7,593                  | 7,098                  |
| 11—16 | 15,538                  | 13,664                  | 12,158                  | 51—56 | 7,940                   | 7,409                  | 6,936                  |
| 12—17 | 15,308                  | 13,480                  | 12,009                  | 52—57 | 7,730                   | 7,225                  | 6,774                  |
| 13—18 | 15,086                  | 13,303                  | 11,864                  | 53—58 | 7,518                   | 7,039                  | 6,609                  |
| 14—19 | 14,870                  | 13,130                  | 11,723                  | 54—59 | 7,304                   | 6,850                  | 6,442                  |
| 15—20 | 14,660                  | 12,961                  | 11,585                  | 55—60 | 7,088                   | 6,659                  | 6,272                  |
| 16—21 | 14,457                  | 12,799                  | 11,452                  | 56—61 | 6,870                   | 6,465                  | 6,100                  |
| 17—22 | 14,265                  | 12,646                  | 11,327                  | 57—62 | 6,651                   | 6,270                  | 5,925                  |
| 18—23 | 14,082                  | 12,500                  | 11,209                  | 58—63 | 6,427                   | 6,070                  | 5,744                  |
| 19—24 | 13,908                  | 12,361                  | 11,096                  | 59—64 | 6,201                   | 5,867                  | 5,561                  |
| 20—25 | 13,741                  | 12,229                  | 10,989                  | 60—65 | 5,970                   | 5,658                  | 5,372                  |
| 21—26 | 13,584                  | 12,105                  | 10,890                  | 61—66 | 5,737                   | 5,447                  | 5,180                  |
| 22—27 | 13,433                  | 11,987                  | 10,796                  | 62—67 | 5,503                   | 5,285                  | 4,986                  |
| 23—28 | 13,280                  | 11,866                  | 10,699                  | 63—68 | 5,265                   | 5,017                  | 4,786                  |
| 24—29 | 13,124                  | 11,743                  | 10,600                  | 64—69 | 5,025                   | 4,798                  | 4,585                  |
| 25—30 | 12,966                  | 11,618                  | 10,499                  | 65—70 | 4,782                   | 4,573                  | 4,378                  |
| 26—31 | 12,805                  | 11,489                  | 10,396                  | 66—71 | 4,540                   | 4,349                  | 4,169                  |
| 27—32 | 12,641                  | 11,359                  | 10,289                  | 67—72 | 4,298                   | 4,124                  | 3,960                  |
| 28—33 | 12,474                  | 11,225                  | 10,181                  | 68—73 | 4,059                   | 3,901                  | 3,752                  |
| 29—34 | 12,304                  | 11,088                  | 10,069                  | 69—74 | 3,825                   | 3,683                  | 3,547                  |
| 30—35 | 12,131                  | 10,948                  | 9,954                   | 70—75 | 3,599                   | 3,471                  | 3,347                  |
| 31—36 | 11,955                  | 10,805                  | 9,837                   | 71—76 | 3,386                   | 3,270                  | 3,159                  |
| 32—37 | 11,775                  | 10,659                  | 9,716                   | 72—77 | 3,175                   | 3,070                  | 2,971                  |
| 33—38 | 11,591                  | 10,508                  | 9,591                   | 73—78 | 2,963                   | 2,869                  | 2,780                  |
| 34—39 | 11,404                  | 10,354                  | 9,463                   | 74—79 | 2,743                   | 2,659                  | 2,580                  |
| 35—40 | 11,213                  | 10,196                  | 9,331                   | 75—80 | 2,526                   | 2,448                  | 2,381                  |
| 36—41 | 11,021                  | 10,037                  | 9,198                   | 76—81 | 2,325                   | 2,258                  | 2,195                  |
| 37—42 | 10,828                  | 9,877                   | 9,062                   | 77—82 | 2,131                   | 2,077                  | 2,013                  |
| 38—43 | 10,634                  | 9,716                   | 8,927                   | 78—83 | 1,947                   | 1,899                  | 1,838                  |
| 39—44 | 10,437                  | 9,550                   | 8,787                   | 79—84 | 1,792                   | 1,751                  | 1,750                  |
| 40—45 | 10,235                  | 9,381                   | 8,643                   | 80—85 | 1,645                   | 1,608                  | 1,573                  |

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|------------------------|
| 81—86 | 1,510                   | 1,478                   | 1,447                   | 87—92 | 0,755                   | 0,738                  | 0,731                  |
| 82—87 | 1,385                   | 1,356                   | 1,329                   | 88—93 | 0,561                   | 0,554                  | 0,547                  |
| 83—88 | 1,284                   | 1,259                   | 1,235                   | 89—94 | 0,377                   | 0,373                  | 0,369                  |
| 84—89 | 1,187                   | 1,164                   | 1,145                   | 90—95 | 0,179                   | 0,177                  | 0,175                  |
| 85—90 | 1,074                   | 1,054                   | 1,038                   | 91—96 | 0,000                   | 0,000                  | 0,000                  |
| 86—91 | 0,921                   | 0,902                   | 0,892                   |       |                         |                        |                        |

## EXAMPLES.

1. What is the value of an annuity of £500 for the joint lives of two persons, one 45 and the other 50 years of age, reckoning interest at 5 per cent.?

Value of £1 annuity, per table..... 7,891

Multiply by the annuity ..... 500

*Answer* £3945,500

2. An estate, worth £16 per annum, falls to a person on the decease of either of two lives, aged 31 and 36; what is the value of the reversion, reckoning interest at 3 per cent.?

The interest being 3 per cent. the perpetuity is 33,333

Deduct the value of £1 annuity, per the above table... 11,955

21,378

Multiply by the rent ..... 16

128268

21378

342,048

*Answer* £342. 0s. 11½d.

## TABLE XIII.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 10 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|------------------------|
| 1—11  | 12,346                  | 10,782                  | 9,544                   | 38—48 | 10,014                  | 9,195                  | 8,487                  |
| 2—12  | 14,239                  | 12,438                  | 11,010                  | 39—49 | 9,803                   | 9,015                  | 8,333                  |
| 3—13  | 14,895                  | 13,019                  | 11,528                  | 40—50 | 9,590                   | 8,834                  | 8,177                  |
| 4—14  | 15,287                  | 13,374                  | 11,850                  | 41—51 | 9,383                   | 8,658                  | 8,025                  |
| 5—15  | 15,391                  | 13,479                  | 11,954                  | 42—52 | 9,179                   | 8,483                  | 7,875                  |
| 6—16  | 15,486                  | 13,578                  | 12,052                  | 43—53 | 8,974                   | 8,308                  | 7,724                  |
| 7—17  | 15,490                  | 13,599                  | 12,083                  | 44—54 | 8,767                   | 8,130                  | 7,569                  |
| 8—18  | 15,436                  | 13,569                  | 12,070                  | 45—55 | 8,557                   | 7,948                  | 7,411                  |
| 9—19  | 15,316                  | 13,482                  | 12,006                  | 46—56 | 8,343                   | 7,763                  | 7,249                  |
| 10—20 | 15,151                  | 13,355                  | 11,906                  | 47—57 | 8,127                   | 7,574                  | 7,084                  |
| 11—21 | 14,974                  | 13,217                  | 11,797                  | 48—58 | 7,907                   | 7,382                  | 6,915                  |
| 12—22 | 14,795                  | 13,078                  | 11,686                  | 49—59 | 7,684                   | 7,186                  | 6,742                  |
| 13—23 | 14,612                  | 12,934                  | 11,570                  | 50—60 | 7,460                   | 6,989                  | 6,568                  |
| 14—24 | 14,424                  | 12,784                  | 11,450                  | 51—61 | 7,240                   | 6,795                  | 6,395                  |
| 15—25 | 14,230                  | 12,630                  | 11,324                  | 52—62 | 7,021                   | 6,600                  | 6,222                  |
| 16—26 | 14,030                  | 12,470                  | 11,193                  | 53—63 | 6,795                   | 6,399                  | 6,042                  |
| 17—27 | 13,832                  | 12,311                  | 11,063                  | 54—64 | 6,568                   | 6,196                  | 5,860                  |
| 18—28 | 13,642                  | 12,158                  | 10,939                  | 55—65 | 6,334                   | 5,986                  | 5,671                  |
| 19—29 | 13,461                  | 12,013                  | 10,820                  | 56—66 | 6,098                   | 5,774                  | 5,479                  |
| 20—30 | 13,286                  | 11,873                  | 10,707                  | 57—67 | 5,860                   | 5,559                  | 5,283                  |
| 21—31 | 13,121                  | 11,742                  | 10,600                  | 58—68 | 5,621                   | 5,341                  | 5,084                  |
| 22—32 | 12,961                  | 11,615                  | 10,498                  | 59—69 | 5,380                   | 5,121                  | 4,883                  |
| 23—33 | 12,798                  | 11,485                  | 10,393                  | 60—70 | 5,139                   | 4,900                  | 4,680                  |
| 24—34 | 12,632                  | 11,352                  | 10,285                  | 61—71 | 4,898                   | 4,679                  | 4,476                  |
| 25—35 | 12,463                  | 11,217                  | 10,175                  | 62—72 | 4,659                   | 4,458                  | 4,272                  |
| 26—36 | 12,291                  | 11,078                  | 10,062                  | 63—73 | 4,420                   | 4,236                  | 4,066                  |
| 27—37 | 12,116                  | 10,936                  | 9,946                   | 64—74 | 4,186                   | 4,019                  | 3,864                  |
| 28—38 | 11,937                  | 10,791                  | 9,826                   | 65—75 | 3,958                   | 3,806                  | 3,665                  |
| 29—39 | 11,755                  | 10,642                  | 9,703                   | 66—76 | 3,743                   | 3,606                  | 3,477                  |
| 30—40 | 11,568                  | 10,490                  | 9,576                   | 67—77 | 3,529                   | 3,405                  | 3,289                  |
| 31—41 | 11,382                  | 10,336                  | 9,448                   | 68—78 | 3,309                   | 3,199                  | 3,095                  |
| 32—42 | 11,195                  | 10,182                  | 9,320                   | 69—79 | 3,077                   | 2,979                  | 2,887                  |
| 33—43 | 11,007                  | 10,027                  | 9,190                   | 70—80 | 2,843                   | 2,757                  | 2,675                  |
| 34—44 | 10,816                  | 9,869                   | 9,058                   | 71—81 | 2,618                   | 2,542                  | 2,470                  |
| 35—45 | 10,622                  | 9,706                   | 8,921                   | 72—82 | 2,401                   | 2,334                  | 2,271                  |
| 36—46 | 10,423                  | 9,540                   | 8,781                   | 73—83 | 2,199                   | 2,141                  | 2,085                  |
| 37—47 | 10,221                  | 9,370                   | 8,636                   | 74—84 | 2,043                   | 1,991                  | 1,941                  |

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|-----------------------|------------------------|
| 75—85 | 1,902                   | 1,856                   | 1,811                   | 81—91 | 1,096                   | 1,078                 | 1,061                  |
| 76—86 | 1,781                   | 1,739                   | 1,699                   | 82—92 | 0,877                   | 0,864                 | 0,852                  |
| 77—87 | 1,670                   | 1,633                   | 1,597                   | 83—93 | 0,622                   | 0,614                 | 0,606                  |
| 78—88 | 1,580                   | 1,546                   | 1,514                   | 84—94 | 0,407                   | 0,403                 | 0,398                  |
| 79—89 | 1,456                   | 1,427                   | 1,400                   | 85—95 | 0,189                   | 0,187                 | 0,185                  |
| 80—90 | 1,302                   | 1,278                   | 1,255                   |       |                         |                       |                        |

## EXAMPLES.

1. What is the value of £50 per annum, to be enjoyed during the lives of two persons, aged 68 and 78, either life failing, the annuity to cease, reckoning interest at 5 per cent.?

The value of £1, by the table at 5 per cent. is 3,095

Multiply by the annuity . . . . . 50

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154,750

*Answer* £154. 15s.

2. What is the value of £100, to be received one year after the decrease of either of two persons, aged 79 and 89; interest 4 per cent.?

Interest being 4 per cent. the perpetuity is 25,

Value of £1 annuity, per the above table, 1,427

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23,573

Multiply by the interest for a year 4

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94,292

And 94,292 divided by 1,04 (the amount of £1 in a year), gives £90. 13s. 3½d. the answer.

## TABLE XIV.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 15 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|-----------------------|
| 1—16  | 11,864                  | 10,406                  | 9,243                   | 41—56 | 8,655                   | 8,035                  | 7,489                 |
| 2—17  | 13,659                  | 11,981                  | 10,642                  | 42—57 | 8,439                   | 7,848                  | 7,326                 |
| 3—18  | 14,277                  | 12,531                  | 11,134                  | 43—58 | 8,222                   | 7,660                  | 7,162                 |
| 4—19  | 14,657                  | 12,876                  | 11,447                  | 44—59 | 8,003                   | 7,469                  | 6,994                 |
| 5—20  | 14,775                  | 12,993                  | 11,561                  | 45—60 | 7,781                   | 7,274                  | 6,822                 |
| 6—21  | 14,904                  | 13,121                  | 11,685                  | 46—61 | 7,556                   | 7,076                  | 6,648                 |
| 7—22  | 14,950                  | 13,178                  | 11,748                  | 47—62 | 7,328                   | 6,875                  | 6,469                 |
| 8—23  | 14,929                  | 13,168                  | 11,761                  | 48—63 | 7,093                   | 6,667                  | 6,283                 |
| 9—24  | 14,834                  | 13,112                  | 11,715                  | 49—64 | 6,854                   | 6,454                  | 6,093                 |
| 10—25 | 14,683                  | 12,998                  | 11,627                  | 50—65 | 6,611                   | 6,236                  | 5,897                 |
| 11—26 | 14,508                  | 12,861                  | 11,519                  | 51—66 | 6,369                   | 6,019                  | 5,701                 |
| 12—27 | 14,323                  | 12,715                  | 11,402                  | 52—67 | 6,127                   | 5,801                  | 5,504                 |
| 13—28 | 14,132                  | 12,564                  | 11,280                  | 53—68 | 5,883                   | 5,580                  | 5,303                 |
| 14—29 | 13,936                  | 12,408                  | 11,153                  | 54—69 | 5,638                   | 5,357                  | 5,100                 |
| 15—30 | 13,734                  | 12,246                  | 11,021                  | 55—70 | 5,391                   | 5,132                  | 4,893                 |
| 16—31 | 13,527                  | 12,078                  | 10,883                  | 56—71 | 5,145                   | 4,905                  | 4,685                 |
| 17—32 | 13,320                  | 11,911                  | 10,746                  | 57—72 | 4,899                   | 4,679                  | 4,477                 |
| 18—33 | 13,121                  | 11,750                  | 10,613                  | 58—73 | 4,656                   | 4,455                  | 4,269                 |
| 19—34 | 12,930                  | 11,595                  | 10,486                  | 59—74 | 4,418                   | 4,234                  | 4,064                 |
| 20—35 | 12,744                  | 11,445                  | 10,363                  | 60—75 | 4,189                   | 4,021                  | 3,866                 |
| 21—36 | 12,567                  | 11,302                  | 10,246                  | 61—76 | 3,974                   | 3,821                  | 3,679                 |
| 22—37 | 12,394                  | 11,163                  | 10,132                  | 62—77 | 3,759                   | 3,621                  | 3,492                 |
| 23—38 | 12,218                  | 11,020                  | 10,015                  | 63—78 | 3,538                   | 3,414                  | 3,297                 |
| 24—39 | 12,038                  | 10,874                  | 9,895                   | 64—79 | 3,303                   | 3,192                  | 3,088                 |
| 25—40 | 11,854                  | 10,725                  | 9,771                   | 65—80 | 3,063                   | 2,965                  | 2,873                 |
| 26—41 | 11,670                  | 10,574                  | 9,647                   | 66—81 | 2,833                   | 2,746                  | 2,664                 |
| 27—42 | 11,486                  | 10,423                  | 9,522                   | 67—82 | 2,610                   | 2,533                  | 2,461                 |
| 28—43 | 11,302                  | 10,272                  | 9,396                   | 68—83 | 2,403                   | 2,336                  | 2,272                 |
| 29—44 | 11,114                  | 10,117                  | 9,267                   | 69—84 | 2,244                   | 2,183                  | 2,126                 |
| 30—45 | 10,932                  | 9,959                   | 9,135                   | 70—85 | 2,096                   | 2,042                  | 1,991                 |
| 31—46 | 10,728                  | 9,797                   | 8,998                   | 71—86 | 1,962                   | 1,914                  | 1,867                 |
| 32—47 | 10,530                  | 9,631                   | 8,858                   | 72—87 | 1,838                   | 1,794                  | 1,753                 |
| 33—48 | 10,327                  | 9,461                   | 8,714                   | 73—88 | 1,736                   | 1,697                  | 1,660                 |
| 34—49 | 10,120                  | 9,286                   | 8,565                   | 74—89 | 1,603                   | 1,570                  | 1,538                 |
| 35—50 | 9,912                   | 9,110                   | 8,415                   | 75—90 | 1,440                   | 1,413                  | 1,387                 |
| 36—51 | 9,707                   | 8,937                   | 8,267                   | 76—91 | 1,221                   | 1,200                  | 1,180                 |
| 37—52 | 9,503                   | 8,763                   | 8,119                   | 77—92 | 0,985                   | 0,970                  | 0,955                 |
| 38—53 | 9,296                   | 8,586                   | 7,966                   | 78—93 | 0,706                   | 0,697                  | 0,688                 |
| 39—54 | 9,085                   | 8,406                   | 7,810                   | 79—94 | 0,458                   | 0,453                  | 0,448                 |
| 40—55 | 8,870                   | 8,221                   | 7,651                   | 80—95 | 0,210                   | 0,208                  | 0,206                 |

## EXAMPLES.

1. An annuity of £400 depends on the joint lives of two persons, aged 17 and 32; what is the value, reckoning interest at 3 per cent.?

Value of £1 per table.... 13,32  
400

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*Answer* £5328,00

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2. What is the value of an assurance of £100 on two joint lives, aged 20 and 35, interest 3 per cent.?

Interest being 3 per cent. the perpetuity is 33,333

Deduct the value of £1 annuity, per table. 12,744

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20,589

Multiply by the interest for a year.. 3

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61,767

And 61,767 divided by 1,03 (the amount of £1 in a year), gives 59,968, as per table 37.

TABLE XV.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 20 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|------------------------|
| 1—21  | 11,413                  | 10,053                  | 8,961                   | 39—59 | 8,253                   | 7,689                  | 7,189                  |
| 2—22  | 13,172                  | 11,605                  | 10,344                  | 40—60 | 8,025                   | 7,490                  | 7,015                  |
| 3—23  | 13,794                  | 12,161                  | 10,843                  | 41—61 | 7,796                   | 7,290                  | 6,838                  |
| 4—24  | 14,178                  | 12,511                  | 11,163                  | 42—62 | 7,566                   | 7,088                  | 6,660                  |
| 5—25  | 14,301                  | 12,633                  | 11,281                  | 43—63 | 7,332                   | 6,881                  | 6,477                  |
| 6—26  | 14,420                  | 12,754                  | 11,400                  | 44—64 | 7,095                   | 6,671                  | 6,289                  |
| 7—27  | 14,451                  | 12,798                  | 11,452                  | 45—65 | 6,850                   | 6,453                  | 6,094                  |
| 8—28  | 14,417                  | 12,786                  | 11,455                  | 46—66 | 6,602                   | 6,230                  | 5,894                  |
| 9—29  | 14,310                  | 12,710                  | 11,401                  | 47—67 | 6,351                   | 6,004                  | 5,690                  |
| 10—30 | 14,150                  | 12,586                  | 11,304                  | 48—68 | 6,096                   | 5,774                  | 5,481                  |
| 11—31 | 13,965                  | 12,441                  | 11,188                  | 49—69 | 5,839                   | 5,541                  | 5,268                  |
| 12—32 | 13,770                  | 12,286                  | 11,062                  | 50—70 | 5,582                   | 5,306                  | 5,054                  |
| 13—33 | 13,570                  | 12,125                  | 10,932                  | 51—71 | 5,328                   | 5,074                  | 4,841                  |
| 14—34 | 13,363                  | 11,959                  | 10,796                  | 52—72 | 5,077                   | 4,845                  | 4,630                  |
| 15—35 | 13,151                  | 11,787                  | 10,655                  | 53—73 | 4,828                   | 4,614                  | 4,417                  |
| 16—36 | 12,932                  | 11,609                  | 10,507                  | 54—74 | 4,585                   | 4,389                  | 4,208                  |
| 17—37 | 12,714                  | 11,430                  | 10,358                  | 55—75 | 4,350                   | 4,171                  | 4,006                  |
| 18—38 | 12,502                  | 11,257                  | 10,214                  | 56—76 | 4,129                   | 3,966                  | 3,815                  |
| 19—39 | 12,297                  | 11,089                  | 10,074                  | 57—77 | 3,908                   | 3,761                  | 3,623                  |
| 20—40 | 12,096                  | 10,924                  | 9,937                   | 58—78 | 3,682                   | 3,549                  | 3,424                  |
| 21—41 | 11,906                  | 10,768                  | 9,809                   | 59—79 | 3,440                   | 3,322                  | 3,210                  |
| 22—42 | 11,723                  | 10,619                  | 9,685                   | 60—80 | 3,197                   | 3,092                  | 2,992                  |
| 23—43 | 11,540                  | 10,470                  | 9,562                   | 61—81 | 2,964                   | 2,870                  | 2,782                  |
| 24—44 | 11,354                  | 10,317                  | 9,435                   | 62—82 | 2,739                   | 2,656                  | 2,578                  |
| 25—45 | 11,164                  | 10,160                  | 9,304                   | 63—83 | 2,530                   | 2,457                  | 2,387                  |
| 26—46 | 10,970                  | 10,000                  | 9,170                   | 64—84 | 2,371                   | 2,305                  | 2,242                  |
| 27—47 | 10,773                  | 9,836                   | 9,032                   | 65—85 | 2,223                   | 2,163                  | 2,107                  |
| 28—48 | 10,572                  | 9,667                   | 8,890                   | 66—86 | 2,089                   | 2,035                  | 1,984                  |
| 29—49 | 10,366                  | 9,495                   | 8,744                   | 67—87 | 1,963                   | 1,915                  | 1,870                  |
| 30—50 | 10,160                  | 9,321                   | 8,596                   | 68—88 | 1,860                   | 1,817                  | 1,777                  |
| 31—51 | 9,957                   | 9,151                   | 8,451                   | 69—89 | 1,721                   | 1,685                  | 1,650                  |
| 32—52 | 9,755                   | 8,980                   | 8,306                   | 70—90 | 1,545                   | 1,515                  | 1,486                  |
| 33—53 | 9,550                   | 8,806                   | 8,157                   | 71—91 | 1,303                   | 1,280                  | 1,259                  |
| 34—54 | 9,342                   | 8,629                   | 8,005                   | 72—92 | 1,044                   | 1,028                  | 1,012                  |
| 35—55 | 9,131                   | 8,448                   | 7,849                   | 73—93 | 0,743                   | 0,733                  | 0,723                  |
| 36—56 | 8,916                   | 8,264                   | 7,690                   | 74—94 | 0,480                   | 0,474                  | 0,469                  |
| 37—57 | 8,698                   | 8,076                   | 7,527                   | 75—95 | 0,219                   | 0,217                  | 0,215                  |
| 38—58 | 8,477                   | 7,884                   | 7,360                   |       |                         |                        |                        |

## EXAMPLES.

1. What is the value of an annuity of £60 per annum, held on the joint continuance of two lives, aged 67 and 87, interest 5 per cent.?

Value of £1, by the table, is 1,870

Multiply by the annuity.. 60

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112,200

*Answer* £112. 4s.

2. A legacy of £100 is to be received on the decease of two joint lives, aged 33 and 53; what is the value thereof, reckoning interest at 5 per cent.?

Interest being at 5 per cent. the perpetuity is 20,

Value by the table..... 8,157

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11,843

Multiply by the interest for a year.. 5

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59,215

It is supposed that the legacy is not received till twelve months after the decease of the joint lives, therefore to find the value 59,215 must be divided by 1.05 (the amount of £1 in a year), and the answer is  $56,395 = £56. 7s. 10\frac{3}{4}d.$

## TABLE XVI.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 25 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|-----------------------|
| 1—26  | 11,037                  | 9,770                   | 8,742                   | 36—61 | 7,997                   | 7,469                  | 6,998                 |
| 2—27  | 12,722                  | 11,264                  | 10,080                  | 37—62 | 7,765                   | 7,265                  | 6,819                 |
| 3—28  | 13,306                  | 11,790                  | 10,555                  | 38—63 | 7,524                   | 7,053                  | 6,631                 |
| 4—29  | 13,660                  | 12,116                  | 10,855                  | 39—64 | 7,281                   | 6,838                  | 6,440                 |
| 5—30  | 13,762                  | 12,220                  | 10,959                  | 40—65 | 7,029                   | 6,614                  | 6,240                 |
| 6—31  | 13,859                  | 12,322                  | 11,062                  | 41—66 | 6,776                   | 6,388                  | 6,037                 |
| 7—32  | 13,871                  | 12,350                  | 11,100                  | 42—67 | 6,522                   | 6,159                  | 5,831                 |
| 8—33  | 13,820                  | 12,323                  | 11,090                  | 43—68 | 6,266                   | 5,929                  | 5,622                 |
| 9—34  | 13,698                  | 12,234                  | 11,024                  | 44—69 | 6,008                   | 5,696                  | 5,411                 |
| 10—35 | 13,525                  | 12,098                  | 10,916                  | 45—70 | 5,749                   | 5,460                  | 5,195                 |
| 11—36 | 13,328                  | 11,941                  | 10,788                  | 46—71 | 5,488                   | 5,222                  | 4,978                 |
| 12—37 | 13,120                  | 11,773                  | 10,651                  | 47—72 | 5,228                   | 4,983                  | 4,758                 |
| 13—38 | 12,906                  | 11,600                  | 10,509                  | 48—73 | 4,970                   | 4,746                  | 4,539                 |
| 14—39 | 12,686                  | 11,420                  | 10,360                  | 49—74 | 4,716                   | 4,511                  | 4,322                 |
| 15—40 | 12,459                  | 11,234                  | 10,205                  | 50—75 | 4,472                   | 4,285                  | 4,112                 |
| 16—41 | 12,229                  | 11,044                  | 10,046                  | 51—76 | 4,244                   | 4,074                  | 3,916                 |
| 17—42 | 12,002                  | 10,856                  | 9,889                   | 52—77 | 4,019                   | 3,864                  | 3,720                 |
| 18—43 | 11,785                  | 10,677                  | 9,739                   | 53—78 | 3,787                   | 3,648                  | 3,518                 |
| 19—44 | 11,574                  | 10,502                  | 9,592                   | 54—79 | 3,540                   | 3,416                  | 3,299                 |
| 20—45 | 11,367                  | 10,330                  | 9,448                   | 55—80 | 3,291                   | 3,180                  | 3,076                 |
| 21—46 | 11,167                  | 10,165                  | 9,310                   | 56—81 | 3,051                   | 2,953                  | 2,861                 |
| 22—47 | 10,969                  | 10,001                  | 9,173                   | 57—82 | 2,820                   | 2,733                  | 2,651                 |
| 23—48 | 10,768                  | 9,833                   | 9,031                   | 58—83 | 2,608                   | 2,530                  | 2,457                 |
| 24—49 | 10,562                  | 9,661                   | 8,886                   | 59—84 | 2,416                   | 2,376                  | 2,310                 |
| 25—50 | 10,356                  | 9,488                   | 8,739                   | 60—85 | 2,297                   | 2,234                  | 2,174                 |
| 26—51 | 10,154                  | 9,318                   | 8,595                   | 61—86 | 2,162                   | 2,105                  | 2,051                 |
| 27—52 | 9,952                   | 9,148                   | 8,451                   | 62—87 | 2,036                   | 1,985                  | 1,937                 |
| 28—53 | 9,747                   | 8,975                   | 8,304                   | 63—88 | 1,932                   | 1,886                  | 1,843                 |
| 29—54 | 9,540                   | 8,799                   | 8,153                   | 64—89 | 1,790                   | 1,751                  | 1,714                 |
| 30—55 | 9,329                   | 8,619                   | 7,999                   | 65—90 | 1,606                   | 1,575                  | 1,544                 |
| 31—56 | 9,115                   | 8,436                   | 7,841                   | 66—91 | 1,354                   | 1,330                  | 1,307                 |
| 32—57 | 8,897                   | 8,250                   | 7,680                   | 67—92 | 1,083                   | 1,067                  | 1,050                 |
| 33—58 | 8,677                   | 8,060                   | 7,515                   | 68—93 | 0,770                   | 0,760                  | 0,750                 |
| 34—59 | 8,453                   | 7,866                   | 7,346                   | 69—94 | 0,497                   | 0,491                  | 0,485                 |
| 35—60 | 8,227                   | 7,669                   | 7,174                   | 70—95 | 0,226                   | 0,224                  | 0,222                 |

## EXAMPLES.

1. What is the value of an annuity of £20 per annum, to be received during the joint lives of two persons, aged 20 and 45, reckoning interest 4 per cent.?

|                                                   |        |
|---------------------------------------------------|--------|
| Value of an annuity of £1, by the above table, is | 10,33  |
| Multiply by the annuity . . .                     | 20     |
|                                                   | <hr/>  |
|                                                   | 206,60 |

*Answer* £206. 12s.

2. What is the value of an assurance of £100 on two joint lives, aged 25 and 50, interest 5 per cent.?

|                                              |        |
|----------------------------------------------|--------|
| Interest being 5 per cent. the perpetuity is | 20,    |
| Subtract the annuity of £1, per table. .     | 8,739  |
|                                              | <hr/>  |
|                                              | 11,261 |
| Multiply by the interest for a year. . .     | 5      |
|                                              | <hr/>  |
|                                              | 56,305 |

And 56,305 divided by 1,05 (the amount of £1 in a year), gives 53,623, the answer, as per table 37.

## TABLE XVII.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 30 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|-----------------------|
| 1—31  | 10,605                  | 9,438                   | 8,483                   | 34—64 | 7,429                   | 6,971                  | 6,559                 |
| 2—32  | 12,203                  | 10,865                  | 9,767                   | 35—65 | 7,177                   | 6,747                  | 6,360                 |
| 3—33  | 12,743                  | 11,355                  | 10,213                  | 36—66 | 6,922                   | 6,520                  | 6,156                 |
| 4—34  | 13,061                  | 11,651                  | 10,488                  | 37—67 | 6,663                   | 6,288                  | 5,948                 |
| 5—35  | 13,136                  | 11,732                  | 10,572                  | 38—68 | 6,401                   | 6,052                  | 5,735                 |
| 6—36  | 13,206                  | 11,812                  | 10,656                  | 39—69 | 6,137                   | 5,813                  | 5,518                 |
| 7—37  | 13,195                  | 11,819                  | 10,676                  | 40—70 | 5,870                   | 5,571                  | 5,298                 |
| 8—38  | 13,122                  | 11,772                  | 10,648                  | 41—71 | 5,605                   | 5,329                  | 5,076                 |
| 9—39  | 12,981                  | 11,665                  | 10,565                  | 42—72 | 5,341                   | 5,087                  | 4,854                 |
| 10—40 | 12,791                  | 11,513                  | 10,442                  | 43—73 | 5,081                   | 4,848                  | 4,634                 |
| 11—41 | 12,580                  | 11,342                  | 10,302                  | 44—74 | 4,826                   | 4,613                  | 4,417                 |
| 12—42 | 12,363                  | 11,165                  | 10,156                  | 45—75 | 4,580                   | 4,386                  | 4,206                 |
| 13—43 | 12,144                  | 10,985                  | 10,007                  | 46—76 | 4,348                   | 4,171                  | 4,006                 |
| 14—44 | 11,918                  | 10,799                  | 9,852                   | 47—77 | 4,115                   | 3,954                  | 3,805                 |
| 15—45 | 11,687                  | 10,607                  | 9,690                   | 48—78 | 3,875                   | 3,731                  | 3,596                 |
| 16—46 | 11,448                  | 10,408                  | 9,522                   | 49—79 | 3,619                   | 3,490                  | 3,369                 |
| 17—47 | 11,210                  | 10,208                  | 9,353                   | 50—80 | 3,362                   | 3,247                  | 3,140                 |
| 18—48 | 10,975                  | 10,011                  | 9,186                   | 51—81 | 3,117                   | 3,015                  | 2,920                 |
| 19—49 | 10,746                  | 9,818                   | 9,021                   | 52—82 | 2,882                   | 2,792                  | 2,707                 |
| 20—50 | 10,522                  | 9,630                   | 8,861                   | 53—83 | 2,665                   | 2,585                  | 2,510                 |
| 21—51 | 10,313                  | 9,454                   | 8,712                   | 54—84 | 2,500                   | 2,428                  | 2,360                 |
| 22—52 | 10,111                  | 9,284                   | 8,568                   | 55—85 | 2,349                   | 2,284                  | 2,222                 |
| 23—53 | 9,905                   | 9,111                   | 8,421                   | 56—86 | 2,211                   | 2,153                  | 2,097                 |
| 24—54 | 9,696                   | 8,934                   | 8,270                   | 57—87 | 2,082                   | 2,030                  | 1,980                 |
| 25—55 | 9,484                   | 8,754                   | 8,116                   | 58—88 | 1,975                   | 1,928                  | 1,883                 |
| 26—56 | 9,269                   | 8,570                   | 7,958                   | 59—89 | 1,828                   | 1,788                  | 1,750                 |
| 27—57 | 9,051                   | 8,383                   | 7,797                   | 60—90 | 1,641                   | 1,608                  | 1,577                 |
| 28—58 | 8,830                   | 8,193                   | 7,632                   | 61—91 | 1,382                   | 1,358                  | 1,334                 |
| 29—59 | 8,605                   | 7,999                   | 7,464                   | 62—92 | 1,105                   | 1,088                  | 1,071                 |
| 30—60 | 8,378                   | 7,802                   | 7,292                   | 63—93 | 0,785                   | 0,774                  | 0,764                 |
| 31—61 | 8,147                   | 7,601                   | 7,116                   | 64—94 | 0,506                   | 0,500                  | 0,494                 |
| 32—62 | 7,914                   | 7,397                   | 6,937                   | 65—95 | 0,230                   | 0,228                  | 0,226                 |
| 33—63 | 7,673                   | 7,185                   | 6,750                   |       |                         |                        |                       |

## EXAMPLES.

1. A person has an estate during the joint lives of two persons, aged 50 and 80, which nets £250 per annum; what is the value of his interest, discounting at 5 per cent.?

Value of £1 per annum, by the above table... 3,14

Multiply by the rent.... 250

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15700

628

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*Answer* £785

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2. What is the value of £100 to be received 12 months after the decease of either of two persons, aged 10 and 40, interest 3 per cent.?

Interest being 3 per cent. the perpetuity is 33,333

Deduct the value of £1 annuity, per table. 12,791

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20,542

Multiply by the interest for a year... 3

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61,626

And 61,626 divided by 1,03 (the amount of £1 in a year), gives 59,832, the same as an assurance of £100, as per table 37.

*If the money was to be received immediately after the decease of the lives, the answer would be 61,626 = £61. 12s. 6d.*

## TABLE XVIII.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 35 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 p. Cent. | Value at<br>5p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|------------------------|-----------------------|
| 1—36  | 10,104                  | 9,017                   | 8,173                   | 31—66 | 7,028                   | 6,615                  | 6,243                 |
| 2—37  | 11,600                  | 10,392                  | 9,390                   | 32—67 | 6,768                   | 6,382                  | 6,033                 |
| 3—38  | 12,037                  | 10,838                  | 9,800                   | 33—68 | 6,504                   | 6,146                  | 5,820                 |
| 4—39  | 12,362                  | 11,097                  | 10,043                  | 34—69 | 6,239                   | 5,906                  | 5,603                 |
| 5—40  | 12,405                  | 11,150                  | 10,102                  | 35—70 | 5,971                   | 5,663                  | 5,382                 |
| 6—41  | 12,446                  | 11,203                  | 10,163                  | 36—71 | 5,703                   | 5,419                  | 5,159                 |
| 7—42  | 12,412                  | 11,190                  | 10,165                  | 37—72 | 5,435                   | 5,174                  | 4,934                 |
| 8—43  | 12,325                  | 11,130                  | 10,124                  | 38—73 | 5,169                   | 4,930                  | 4,710                 |
| 9—44  | 12,174                  | 11,012                  | 10,031                  | 39—74 | 4,908                   | 4,690                  | 4,488                 |
| 10—45 | 11,976                  | 10,851                  | 9,900                   | 40—75 | 4,656                   | 4,457                  | 4,272                 |
| 11—46 | 11,755                  | 10,697                  | 9,774                   | 41—76 | 4,419                   | 4,238                  | 4,069                 |
| 12—47 | 11,525                  | 10,481                  | 9,592                   | 42—77 | 4,183                   | 4,019                  | 3,865                 |
| 13—48 | 11,288                  | 10,284                  | 9,425                   | 43—78 | 3,942                   | 3,794                  | 3,655                 |
| 14—49 | 11,045                  | 10,080                  | 9,252                   | 44—79 | 3,685                   | 3,552                  | 3,428                 |
| 15—50 | 10,798                  | 9,872                   | 9,076                   | 45—80 | 3,426                   | 3,308                  | 3,197                 |
| 16—51 | 10,553                  | 9,665                   | 8,899                   | 46—81 | 3,176                   | 3,072                  | 2,973                 |
| 17—52 | 10,313                  | 9,461                   | 8,724                   | 47—82 | 2,936                   | 2,843                  | 2,756                 |
| 18—53 | 10,076                  | 9,260                   | 8,552                   | 48—83 | 2,714                   | 2,632                  | 2,554                 |
| 19—54 | 9,845                   | 9,063                   | 8,383                   | 49—84 | 2,544                   | 2,470                  | 2,400                 |
| 20—55 | 9,616                   | 8,869                   | 8,216                   | 50—85 | 2,388                   | 2,322                  | 2,258                 |
| 21—56 | 9,394                   | 8,679                   | 8,053                   | 51—86 | 2,248                   | 2,188                  | 2,131                 |
| 22—57 | 9,174                   | 8,491                   | 7,891                   | 52—87 | 2,117                   | 2,063                  | 2,012                 |
| 23—58 | 8,951                   | 8,299                   | 7,725                   | 53—88 | 2,007                   | 1,960                  | 1,914                 |
| 24—59 | 8,725                   | 8,104                   | 7,556                   | 54—89 | 1,858                   | 1,817                  | 1,778                 |
| 25—60 | 8,495                   | 7,906                   | 7,383                   | 55—90 | 1,666                   | 1,633                  | 1,601                 |
| 26—61 | 8,263                   | 7,701                   | 7,207                   | 56—91 | 1,402                   | 1,377                  | 1,353                 |
| 27—62 | 8,028                   | 7,499                   | 7,027                   | 57—92 | 1,119                   | 1,102                  | 1,085                 |
| 28—63 | 7,785                   | 7,286                   | 6,839                   | 58—93 | 0,794                   | 0,784                  | 0,773                 |
| 29—64 | 7,539                   | 7,069                   | 6,648                   | 59—94 | 0,511                   | 0,505                  | 0,499                 |
| 30—65 | 7,286                   | 6,844                   | 6,447                   | 60—95 | 0,232                   | 0,230                  | 0,228                 |

## EXAMPLE.

A rent of £60 per annum depends on the joint continuance of two lives, aged 10 and 45; what is the value of it, interest 4 per cent.?

Opposite 10 and 45, and under 4 per cent. is 10,851

Multiply by . . . 60

$$651,060 = £651. 1s. 2\frac{1}{2}d.$$

## TABLE XIX.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 40 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 p. Cent. | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|------------------------|------------------------|------------------------|
| 1—11  | 9,523                   | 8,585                   | 7,800                   | 29—69 | 6,313                  | 5,973                  | 5,664                  |
| 2—42  | 10,907                  | 9,839                   | 8,942                   | 30—70 | 6,043                  | 5,729                  | 5,442                  |
| 3—43  | 11,342                  | 10,242                  | 9,315                   | 31—71 | 5,772                  | 5,483                  | 5,218                  |
| 4—44  | 11,578                  | 10,468                  | 9,531                   | 32—72 | 5,502                  | 5,236                  | 4,992                  |
| 5—45  | 11,597                  | 10,500                  | 9,571                   | 33—73 | 5,235                  | 4,991                  | 4,766                  |
| 6—46  | 11,610                  | 10,528                  | 9,609                   | 34—74 | 4,973                  | 4,749                  | 4,543                  |
| 7—47  | 11,550                  | 10,491                  | 9,589                   | 35—75 | 4,720                  | 4,516                  | 4,327                  |
| 8—48  | 11,435                  | 10,404                  | 9,524                   | 36—76 | 4,481                  | 4,295                  | 4,123                  |
| 9—49  | 11,260                  | 10,263                  | 9,409                   | 37—77 | 4,242                  | 4,073                  | 3,916                  |
| 10—50 | 11,044                  | 10,085                  | 9,260                   | 38—78 | 3,996                  | 3,844                  | 3,702                  |
| 11—51 | 10,816                  | 9,894                   | 9,100                   | 39—79 | 3,734                  | 3,598                  | 3,471                  |
| 12—52 | 10,582                  | 9,698                   | 8,934                   | 40—80 | 3,469                  | 3,349                  | 3,236                  |
| 13—53 | 10,344                  | 9,497                   | 8,763                   | 41—81 | 3,216                  | 3,109                  | 3,009                  |
| 14—54 | 10,100                  | 9,290                   | 8,586                   | 42—82 | 2,973                  | 2,878                  | 2,789                  |
| 15—55 | 9,850                   | 9,077                   | 8,403                   | 43—83 | 2,750                  | 2,666                  | 2,587                  |
| 16—56 | 9,595                   | 8,858                   | 8,214                   | 44—84 | 2,580                  | 2,505                  | 2,433                  |
| 17—57 | 9,340                   | 8,639                   | 8,024                   | 45—85 | 2,424                  | 2,356                  | 2,291                  |
| 18—58 | 9,089                   | 8,422                   | 7,835                   | 46—86 | 2,282                  | 2,221                  | 2,162                  |
| 19—59 | 8,841                   | 8,207                   | 7,648                   | 47—87 | 2,148                  | 2,093                  | 2,041                  |
| 20—60 | 8,596                   | 7,995                   | 7,463                   | 48—88 | 2,036                  | 1,987                  | 1,941                  |
| 21—61 | 8,357                   | 7,787                   | 7,281                   | 49—89 | 1,882                  | 1,840                  | 1,800                  |
| 22—62 | 8,119                   | 7,580                   | 7,100                   | 50—90 | 1,685                  | 1,651                  | 1,619                  |
| 23—63 | 7,874                   | 7,365                   | 6,910                   | 51—91 | 1,417                  | 1,391                  | 1,367                  |
| 24—64 | 7,626                   | 7,147                   | 6,717                   | 52—92 | 1,130                  | 1,113                  | 1,095                  |
| 25—65 | 7,370                   | 6,920                   | 6,515                   | 53—93 | 0,801                  | 0,790                  | 0,780                  |
| 26—66 | 7,110                   | 6,689                   | 6,309                   | 54—94 | 0,515                  | 0,509                  | 0,503                  |
| 27—67 | 6,847                   | 6,454                   | 6,098                   | 55—95 | 0,234                  | 0,232                  | 0,230                  |
| 28—68 | 6,581                   | 6,215                   | 5,883                   |       |                        |                        |                        |

## EXAMPLE.

What is the value of an annuity of £40 per annum during the joint continuance of two lives, aged 14 and 54, interest 5 per cent.?

Opposite 14 and 54, and under 5 per cent. is 8,586

Multiply by the annuity . . . 40

*Answer* £343. 8s. 9½d.

343,440

TABLE XX.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 45 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|-------------------------|-------------------------|
| 1—46  | 8,887                   | 8,071                   | 7,379                   | 26—71 | 5,826                   | 5,532                   | 5,263                   |
| 2—47  | 10,147                  | 9,221                   | 8,435                   | 27—72 | 5,553                   | 5,283                   | 5,035                   |
| 3—48  | 10,515                  | 9,566                   | 8,759                   | 28—73 | 5,284                   | 5,036                   | 4,808                   |
| 4—49  | 10,696                  | 9,744                   | 8,932                   | 29—74 | 5,019                   | 4,792                   | 4,583                   |
| 5—50  | 10,679                  | 9,742                   | 8,941                   | 30—75 | 4,764                   | 4,557                   | 4,365                   |
| 6—51  | 10,664                  | 9,745                   | 8,956                   | 31—76 | 4,523                   | 4,335                   | 4,160                   |
| 7—52  | 10,585                  | 9,690                   | 8,919                   | 32—77 | 4,282                   | 4,111                   | 3,952                   |
| 8—53  | 10,458                  | 9,591                   | 8,841                   | 33—78 | 4,035                   | 3,881                   | 3,737                   |
| 9—54  | 10,276                  | 9,442                   | 8,718                   | 34—79 | 3,771                   | 3,633                   | 3,505                   |
| 10—55 | 10,055                  | 9,256                   | 8,560                   | 35—80 | 3,506                   | 3,383                   | 3,268                   |
| 11—56 | 9,814                   | 9,052                   | 8,386                   | 36—81 | 3,251                   | 3,142                   | 3,040                   |
| 12—57 | 9,566                   | 8,839                   | 8,203                   | 37—82 | 3,005                   | 2,909                   | 2,818                   |
| 13—58 | 9,312                   | 8,622                   | 8,015                   | 38—83 | 2,779                   | 2,694                   | 2,613                   |
| 14—59 | 9,053                   | 8,399                   | 7,821                   | 39—84 | 2,607                   | 2,530                   | 2,457                   |
| 15—60 | 8,790                   | 8,170                   | 7,622                   | 40—85 | 2,448                   | 2,379                   | 2,313                   |
| 16—61 | 8,521                   | 7,935                   | 7,416                   | 41—86 | 2,304                   | 2,241                   | 2,182                   |
| 17—62 | 8,252                   | 7,700                   | 7,208                   | 42—87 | 2,168                   | 2,113                   | 2,060                   |
| 18—63 | 7,981                   | 7,462                   | 6,998                   | 43—88 | 2,055                   | 2,006                   | 1,959                   |
| 19—64 | 7,714                   | 7,226                   | 6,789                   | 44—89 | 1,901                   | 1,859                   | 1,818                   |
| 20—65 | 7,443                   | 6,986                   | 6,576                   | 45—90 | 1,702                   | 1,668                   | 1,635                   |
| 21—66 | 7,177                   | 6,749                   | 6,364                   | 46—91 | 1,431                   | 1,405                   | 1,380                   |
| 22—67 | 6,911                   | 6,512                   | 6,151                   | 47—92 | 1,140                   | 1,122                   | 1,105                   |
| 23—68 | 6,642                   | 6,271                   | 5,934                   | 48—93 | 0,808                   | 0,797                   | 0,786                   |
| 24—69 | 6,372                   | 6,027                   | 5,713                   | 49—94 | 0,518                   | 0,512                   | 0,507                   |
| 25—70 | 6,099                   | 5,780                   | 5,489                   | 50—95 | 0,235                   | 0,233                   | 0,231                   |

## EXAMPLE.

An annuity of £60 depends on the joint lives of two persons, aged 39 and 84; what is the value, reckoning interest at 4 per cent.?

Opposite 39 and 84, and under 4 per cent. is 2,53

Multiply by the annuity . . . 60

Answer £151. 16s. 151,80

## TABLE XXI.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 50 years.

| Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|------------------------|------------------------|------------------------|-------|------------------------|------------------------|------------------------|
| 1—51  | 8,170                  | 7,479                  | 6,885                  | 24—74 | 5,056                  | 4,827                  | 4,615                  |
| 2—52  | 9,299                  | 8,520                  | 7,848                  | 25—75 | 4,799                  | 4,589                  | 4,396                  |
| 3—53  | 9,611                  | 8,815                  | 8,128                  | 26—76 | 4,556                  | 4,365                  | 4,188                  |
| 4—54  | 9,751                  | 8,957                  | 8,269                  | 27—77 | 4,313                  | 4,140                  | 3,979                  |
| 5—55  | 9,707                  | 8,931                  | 8,256                  | 28—78 | 4,064                  | 3,908                  | 3,762                  |
| 6—56  | 9,659                  | 8,902                  | 8,241                  | 29—79 | 3,798                  | 3,659                  | 3,528                  |
| 7—57  | 9,549                  | 8,817                  | 8,176                  | 30—80 | 3,530                  | 3,406                  | 3,290                  |
| 8—58  | 9,395                  | 8,691                  | 8,073                  | 31—81 | 3,274                  | 3,164                  | 3,060                  |
| 9—59  | 9,191                  | 8,519                  | 7,927                  | 32—82 | 3,027                  | 2,929                  | 2,838                  |
| 10—60 | 8,952                  | 8,314                  | 7,750                  | 33—83 | 2,800                  | 2,713                  | 2,632                  |
| 11—61 | 8,696                  | 8,092                  | 7,557                  | 34—84 | 2,627                  | 2,549                  | 2,476                  |
| 12—62 | 8,433                  | 7,863                  | 7,357                  | 35—85 | 2,468                  | 2,398                  | 2,331                  |
| 13—63 | 8,160                  | 7,625                  | 7,147                  | 36—86 | 2,323                  | 2,260                  | 2,200                  |
| 14—64 | 7,883                  | 7,381                  | 6,931                  | 37—87 | 2,187                  | 2,130                  | 2,077                  |
| 15—65 | 7,597                  | 7,127                  | 6,705                  | 38—88 | 2,072                  | 2,022                  | 1,974                  |
| 16—66 | 7,304                  | 6,866                  | 6,472                  | 39—89 | 1,915                  | 1,872                  | 1,832                  |
| 17—67 | 7,011                  | 6,604                  | 6,236                  | 40—90 | 1,713                  | 1,679                  | 1,646                  |
| 18—68 | 6,721                  | 6,343                  | 6,001                  | 41—91 | 1,439                  | 1,413                  | 1,388                  |
| 19—69 | 6,434                  | 6,084                  | 5,766                  | 42—92 | 1,146                  | 1,128                  | 1,111                  |
| 20—70 | 6,149                  | 5,826                  | 5,532                  | 43—93 | 0,811                  | 0,800                  | 0,790                  |
| 21—71 | 5,870                  | 5,572                  | 5,300                  | 44—94 | 0,521                  | 0,515                  | 0,509                  |
| 22—72 | 5,595                  | 5,321                  | 5,070                  | 45—95 | 0,236                  | 0,234                  | 0,232                  |
| 23—73 | 5,323                  | 5,072                  | 4,841                  |       |                        |                        |                        |

## EXAMPLE.

What is the value of an annuity of £60 per annum, to be received during the joint continuance of two lives, aged 27 and 77, discounting at 5 per cent.?

Opposite 27 and 77, and under 5 per cent. is 3,979

Multiply by the annuity . . . 60

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238,740

Answer £238. 14s. 9½d.

## TABLE XXII.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 55 years.

| Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|------------------------|------------------------|------------------------|-------|------------------------|------------------------|------------------------|
| 1—56  | 7,412                  | 6,843                  | 6,346                  | 21—76 | 4,583                  | 4,391                  | 4,212                  |
| 2—57  | 8,392                  | 7,756                  | 7,199                  | 22—77 | 4,339                  | 4,164                  | 4,001                  |
| 3—58  | 8,630                  | 7,986                  | 7,421                  | 23—78 | 4,087                  | 3,930                  | 3,783                  |
| 4—59  | 8,712                  | 8,075                  | 7,514                  | 24—79 | 3,820                  | 3,679                  | 3,548                  |
| 5—60  | 8,629                  | 8,011                  | 7,466                  | 25—80 | 3,550                  | 3,425                  | 3,303                  |
| 6—61  | 8,542                  | 7,944                  | 7,415                  | 26—81 | 3,292                  | 3,181                  | 3,077                  |
| 7—62  | 8,400                  | 7,828                  | 7,319                  | 27—82 | 3,043                  | 2,945                  | 2,853                  |
| 8—63  | 8,214                  | 7,669                  | 7,184                  | 28—83 | 2,815                  | 2,728                  | 2,646                  |
| 9—64  | 7,984                  | 7,470                  | 7,010                  | 29—84 | 2,641                  | 2,563                  | 2,489                  |
| 10—65 | 7,718                  | 7,236                  | 6,803                  | 30—85 | 2,481                  | 2,411                  | 2,344                  |
| 11—66 | 7,437                  | 6,987                  | 6,581                  | 31—86 | 2,336                  | 2,272                  | 2,212                  |
| 12—67 | 7,149                  | 6,730                  | 6,351                  | 32—87 | 2,198                  | 2,142                  | 2,088                  |
| 13—68 | 6,857                  | 6,468                  | 6,116                  | 33—88 | 2,083                  | 2,033                  | 1,985                  |
| 14—69 | 6,562                  | 6,202                  | 5,876                  | 34—89 | 1,925                  | 1,882                  | 1,841                  |
| 15—70 | 6,264                  | 5,933                  | 5,631                  | 35—90 | 1,723                  | 1,688                  | 1,654                  |
| 16—71 | 5,964                  | 5,660                  | 5,382                  | 36—91 | 1,446                  | 1,420                  | 1,395                  |
| 17—72 | 5,667                  | 5,389                  | 5,133                  | 37—92 | 1,152                  | 1,134                  | 1,116                  |
| 18—73 | 5,377                  | 5,123                  | 4,889                  | 38—93 | 0,815                  | 0,804                  | 0,793                  |
| 19—74 | 5,098                  | 4,866                  | 4,651                  | 39—94 | 0,523                  | 0,517                  | 0,511                  |
| 20—75 | 4,831                  | 4,619                  | 4,424                  | 40—95 | 0,237                  | 0,235                  | 0,233                  |

## EXAMPLE.

What is the value of an annuity of £20 per annum, to be enjoyed during the joint continuance of two lives, aged 21 and 76, interest at 5 per cent.?

Opposite 21 and 76, and under 5 per cent. is 4,212

Multiply by the annuity .... 20.

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84,240

20

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4,80

12

*Answer* £84. 4s. 9½d.

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9,6

4

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2,4

## TABLE XXIII.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 60 years.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|-------------------------|-------------------------|
| 1—61  | 6,571                   | 6,123                   | 5,725                   | 19—79 | 3,846                   | 3,704                   | 3,571                   |
| 2—62  | 7,391                   | 6,894                   | 6,452                   | 20—80 | 3,569                   | 3,443                   | 3,325                   |
| 3—63  | 7,545                   | 7,048                   | 6,605                   | 21—81 | 3,307                   | 3,195                   | 3,091                   |
| 4—64  | 7,562                   | 7,076                   | 6,641                   | 22—82 | 3,057                   | 2,958                   | 2,865                   |
| 5—65  | 7,429                   | 6,963                   | 6,546                   | 23—83 | 2,828                   | 2,740                   | 2,657                   |
| 6—66  | 7,290                   | 6,846                   | 6,447                   | 24—84 | 2,653                   | 2,574                   | 2,499                   |
| 7—67  | 7,104                   | 6,684                   | 6,306                   | 25—85 | 2,492                   | 2,421                   | 2,354                   |
| 8—68  | 6,884                   | 6,490                   | 6,134                   | 26—86 | 2,346                   | 2,282                   | 2,221                   |
| 9—69  | 6,628                   | 6,262                   | 5,929                   | 27—87 | 2,208                   | 2,151                   | 2,096                   |
| 10—70 | 6,347                   | 6,008                   | 5,700                   | 28—88 | 2,091                   | 2,041                   | 1,992                   |
| 11—71 | 6,056                   | 5,744                   | 5,460                   | 29—89 | 1,933                   | 1,889                   | 1,848                   |
| 12—72 | 5,763                   | 5,478                   | 5,216                   | 30—90 | 1,729                   | 1,694                   | 1,660                   |
| 13—73 | 5,473                   | 5,212                   | 4,972                   | 31—91 | 1,451                   | 1,425                   | 1,400                   |
| 14—74 | 5,188                   | 4,950                   | 4,731                   | 32—92 | 1,155                   | 1,137                   | 1,119                   |
| 15—75 | 4,911                   | 4,695                   | 4,495                   | 33—93 | 0,817                   | 0,806                   | 0,795                   |
| 16—76 | 4,649                   | 4,452                   | 4,270                   | 34—94 | 0,524                   | 0,518                   | 0,512                   |
| 17—77 | 4,388                   | 4,210                   | 4,045                   | 35—95 | 0,238                   | 0,235                   | 0,233                   |
| 18—78 | 4,123                   | 3,964                   | 3,815                   |       |                         |                         |                         |

## EXAMPLES.

1. What is the value of an annuity of £10 during the continuance of two joint lives, aged 18 and 78, interest 5 per cent.?

Opposite 18 and 78, and under 5 per cent. is 3,815

Multiply by the annuity . . . 10

Answer £38. 3s.

38,150

2. A net rent of £10 per annum will be received by a person on the decease of two joint lives, aged 18 and 78; what is the present value of it, interest reckoned at 5 per cent.?

Interest being at 5 per cent. the perpetuity is 20,

Deduct the value of £1 annuity, per table . . . 3,815

16,185

Multiply by the rent . . . 10

Answer £161. 17s.

161,85

## TABLE XXIV:

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 65 years.

| Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|------------------------|------------------------|------------------------|-------|------------------------|------------------------|------------------------|
| 1—66  | 5,633                  | 5,295                  | 4,996                  | 16—81 | 3,348                  | 3,235                  | 3,128                  |
| 2—67  | 6,266                  | 5,896                  | 5,569                  | 17—82 | 3,087                  | 2,987                  | 2,893                  |
| 3—68  | 6,330                  | 5,965                  | 5,641                  | 18—83 | 2,849                  | 2,760                  | 2,677                  |
| 4—69  | 6,277                  | 5,924                  | 5,611                  | 19—84 | 2,668                  | 2,589                  | 2,513                  |
| 5—70  | 6,102                  | 5,768                  | 5,472                  | 20—85 | 2,503                  | 2,431                  | 2,364                  |
| 6—71  | 5,925                  | 5,610                  | 5,331                  | 21—86 | 2,354                  | 2,290                  | 2,229                  |
| 7—72  | 5,714                  | 5,418                  | 5,157                  | 22—87 | 2,216                  | 2,158                  | 2,104                  |
| 8—73  | 5,480                  | 5,204                  | 4,963                  | 23—88 | 2,099                  | 2,048                  | 1,999                  |
| 9—74  | 5,225                  | 4,969                  | 4,747                  | 24—89 | 1,939                  | 1,895                  | 1,854                  |
| 10—75 | 4,962                  | 4,725                  | 4,522                  | 25—90 | 1,734                  | 1,699                  | 1,665                  |
| 11—76 | 4,707                  | 4,487                  | 4,301                  | 26—91 | 1,455                  | 1,429                  | 1,404                  |
| 12—77 | 4,449                  | 4,368                  | 4,195                  | 27—92 | 1,158                  | 1,140                  | 1,122                  |
| 13—78 | 4,185                  | 4,022                  | 3,871                  | 28—93 | 0,819                  | 0,808                  | 0,797                  |
| 14—79 | 3,904                  | 3,759                  | 3,624                  | 29—94 | 0,525                  | 0,519                  | 0,513                  |
| 15—80 | 3,621                  | 3,492                  | 3,372                  | 30—95 | 0,238                  | 0,236                  | 0,234                  |

## EXAMPLES.

1. What is the value of an annuity of £100 per annum, to be enjoyed during the joint continuance of two lives, aged 15 and 80, reckoning interest 3 per cent.?

The value of £1 per annum, per the above table, is 3,621

Multiply by the annuity . . . 100

*Answer* £362. 2s. 362,100

2. What is the value of a freehold estate which nets £100 per annum, to be entered upon at the death of either of two lives, aged 15 and 80, reckoning interest 3 per cent.?

Interest being 3 per cent. the perpetuity is 33,333

Deduct the value of £1 annuity, per table. 3,621

29,712

Multiply by the rent . . . 100

*Answer* £2971. 4s. 2971,2

TABLE XXV.

Shewing the value of an annuity on the joint continuance of two lives.

Difference of age, 70 years.

| Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|------------------------|------------------------|------------------------|-------|------------------------|------------------------|------------------------|
| 1—71  | 4,611                  | 4,380                  | 4,169                  | 14—84 | 2,703                  | 2,622                  | 2,545                  |
| 2—72  | 5,061                  | 4,814                  | 4,588                  | 15—85 | 2,535                  | 2,462                  | 2,393                  |
| 3—73  | 5,051                  | 4,811                  | 4,591                  | 16—86 | 2,380                  | 2,315                  | 2,253                  |
| 4—74  | 4,953                  | 4,726                  | 4,516                  | 17—87 | 2,235                  | 2,177                  | 2,121                  |
| 5—75  | 4,768                  | 4,557                  | 4,362                  | 18—88 | 2,112                  | 2,061                  | 2,012                  |
| 6—76  | 4,599                  | 4,403                  | 4,221                  | 19—89 | 1,948                  | 1,904                  | 1,862                  |
| 7—77  | 4,402                  | 4,222                  | 4,055                  | 20—90 | 1,739                  | 1,704                  | 1,670                  |
| 8—78  | 4,189                  | 4,016                  | 3,864                  | 21—91 | 1,459                  | 1,432                  | 1,407                  |
| 9—79  | 3,921                  | 3,775                  | 3,638                  | 22—92 | 1,160                  | 1,142                  | 1,124                  |
| 10—80 | 3,647                  | 3,517                  | 3,395                  | 23—93 | 0,820                  | 0,809                  | 0,798                  |
| 11—81 | 3,380                  | 3,261                  | 3,156                  | 24—94 | 0,526                  | 0,520                  | 0,514                  |
| 12—82 | 3,122                  | 3,020                  | 2,924                  | 25—95 | 0,238                  | 0,236                  | 0,234                  |
| 13—83 | 2,884                  | 2,794                  | 2,709                  |       |                        |                        |                        |

## EXAMPLES.

1. What is the value of an annuity of £700, to be enjoyed during the joint continuance of two lives, aged 6 and 76, interest 5 per cent.?

The value of £1 per annum, per table, is 4,221

Multiply by . . . . . 700

*Answer* £2954. 14s. 2954,700

2. What is the value of £700 per annum, to be received on the decease of either of two lives, aged 6 and 76, interest 5 per cent.?

Interest being at 5 per cent. the perpetuity is 20,

Subtract the value of £1 annuity, per table. 4,221

15,779  
Multiply by the annuity . . . . . 700

*Answer* £11045. 6s. 11045,300

Should the difference of age be any number of years between 1 and 5, 5 and 10, 10 and 15, 15 and 20, &c. the required value may be easily found by the following

### RULE.

“ Find, in the preceding tables, the value of two joint lives, whose difference of age is that multiple of 5 which is greater than, but at the same time nearest to, the difference of age between the proposed lives, and the oldest of which is of the same age with the oldest of the proposed lives. Find also, in the preceding tables, the value of two joint lives whose difference of age is 5 years less than the multiple of 5 just mentioned, and the oldest of which is, in like manner, of the same age with the oldest of the proposed lives ; and the 1st, 2d, 3d or 4th arithmetical mean between the least and the greatest of these two values will be the value sought, according as one of the proposed lives is 1 year, 2 years, 3 years, or 4 years younger than the other.

### EXAMPLES.

1. Required the value of two joint lives aged 15 and 18, reckoning interest at 3 per cent. ?

That multiple of 5 which is greater than the difference between these ages, but comes nearest to it, is 5. The value of two joint lives, whose difference of age is 5 years, and the oldest of which is of the same age with the oldest of the two proposed lives ; that is, the value of two joint lives, aged 18 and 13, is by table 12 = 15,086. The value of two joint lives, whose difference of age is 5 years less, and one of which is also 18 ; that is, the value of two joint lives, aged 18 and 18, is by table 11 = 14,516. These, then, being the values of two joint lives, aged 18 and 13, and of two joint lives, aged 18 and 18, it is obvious that the value of two joint lives, aged 18 and 15, must be the third of four arithmetical means between 14,516 and 15,086.

*N. B.* The 1st, 2d, 3d or 4th arithmetical mean between the least and greatest of any two values, is the least increased by one, two, three or four-fifths of the difference between them.

In the present instance, the difference between the two values is ,570 ; its fifth part is ,114 ; and 14,516, increased by thrice this fifth part, makes 14,858, the required value of two joint lives, aged 18 and 15.

2. Required the value of two joint lives, aged 31 and 45, reckoning interest at 5 per cent. ?

That multiple of 5, which is the next greater number to 14, (the difference of age between 45 and 31,) is 15. The value of two joint lives, whose difference of age is this number, and the oldest of which is of the same age with the oldest of the proposed lives ; that is, the value of two joint lives, aged 45 and 30, is by table 14 = 9,135.

The value of two joint lives, whose difference of age is 5 years less than 15, and the oldest of which is, in like manner, of the same with the oldest of the proposed lives ; that is, the value of two joint lives, aged 45 and 35, is by table 13 = 8,921.

These, then, being the values of two joint lives, aged 45 and 30, and of two joint lives, aged 45 and 35, it follows, that the value of two joint lives, aged 45 and 31, must be the fourth of four arithmetical means between the least and the greatest of these two values.

That is, it is 8,921 (the least) increased by four-fifths of ,214 (the difference), or by ,171, which makes 9,092, the required value of two joint lives, aged 45 and 31.

*To find the value of the longest of two lives.*

**RULE.**

From the sum of the values of the single lives subtract the value of their joint continuance; the remainder will be the value of the longest of the two lives.

**EXAMPLES.**

1. Required the value of an annuity of £1 per annum, held on the longest of two lives, aged 20 and 40, interest 5 per cent. ?

|                                                                          |                       |
|--------------------------------------------------------------------------|-----------------------|
| The value of a life, aged 20, by table 10, is                            | 14,007                |
| —                      —                      40,                      — | 11,837                |
|                                                                          | <hr/>                 |
|                                                                          | 25,844                |
| Value of two joint lives, aged 20 and 40, by table 15, is                | 9,937                 |
|                                                                          | <hr/>                 |
|                                                                          | 15,907 <i>Answer,</i> |
| <i>as per the following table.</i>                                       |                       |

2. Required the value of an annuity or rent of £50 on the longest of two lives, aged 21 and 31, interest 5 per cent. ?

|                                                                          |         |
|--------------------------------------------------------------------------|---------|
| The value of a life, aged 21, by table 10, is                            | 13,917  |
| —                      —                      31,                      — | 12,965  |
|                                                                          | <hr/>   |
|                                                                          | 26,882  |
| The value of the joint continuance of these two lives,                   |         |
| by table 13, is.....                                                     | 10,600  |
|                                                                          | <hr/>   |
|                                                                          | 16,282  |
| Multiply by the annuity....                                              | 50      |
|                                                                          | <hr/>   |
|                                                                          | 814,100 |
|                                                                          | <hr/>   |
| <i>Answer</i> £814. 2s.                                                  |         |

TABLE XXVI.

Shewing the value of an annuity of £1 per annum, held on the longest of two lives.

| Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|-------|-------------------------|-------------------------|-------------------------|-------|-------------------------|-------------------------|-------------------------|
| 10—10 | 24,987                  | 20,769                  | 17,613                  | 30—60 | 18,321                  | 16,018                  | 14,172                  |
| 10—20 | 24,150                  | 20,201                  | 17,240                  | 30—70 | 17,613                  | 15,413                  | 13,653                  |
| 10—30 | 23,435                  | 19,718                  | 16,907                  | 30—80 | 17,173                  | 15,018                  | 13,297                  |
| 10—40 | 22,720                  | 19,207                  | 16,534                  | 40—40 | 18,932                  | 16,574                  | 14,658                  |
| 10—50 | 22,055                  | 18,702                  | 16,148                  | 40—50 | 17,694                  | 15,627                  | 13,929                  |
| 10—60 | 21,488                  | 18,248                  | 15,781                  | 40—60 | 16,600                  | 14,746                  | 13,211                  |
| 10—70 | 21,050                  | 17,876                  | 15,462                  | 40—70 | 15,711                  | 13,987                  | 12,562                  |
| 10—80 | 20,797                  | 17,649                  | 15,259                  | 40—80 | 15,160                  | 13,491                  | 12,116                  |
| 20—20 | 23,143                  | 19,531                  | 16,782                  | 50—50 | 16,158                  | 14,447                  | 13,016                  |
| 20—30 | 22,274                  | 18,941                  | 16,372                  | 50—60 | 14,752                  | 13,314                  | 12,093                  |
| 20—40 | 21,390                  | 18,306                  | 15,907                  | 50—70 | 13,588                  | 12,319                  | 11,238                  |
| 20—50 | 20,551                  | 17,667                  | 15,415                  | 50—80 | 12,855                  | 11,660                  | 10,644                  |
| 20—60 | 19,818                  | 17,077                  | 14,936                  | 60—60 | 12,948                  | 11,852                  | 10,896                  |
| 20—70 | 19,223                  | 16,568                  | 14,498                  | 60—70 | 11,372                  | 10,500                  | 9,735                   |
| 20—80 | 18,850                  | 16,233                  | 14,197                  | 60—80 | 10,361                  | 9,590                   | 8,915                   |
| 30—30 | 21,255                  | 18,249                  | 15,889                  | 70—70 | 9,207                   | 8,635                   | 8,116                   |
| 30—40 | 20,202                  | 17,488                  | 15,333                  |       |                         |                         |                         |
| 30—50 | 19,198                  | 16,724                  | 14,745                  |       |                         |                         |                         |

## EXAMPLE.

1. What is the value of an annuity of £50 per annum, to be enjoyed during the continuance of the longest of two lives, aged 10 and 20, interest 5 per cent.?

Opposite 10 and 20, and under 5 per cent. is 17,24

Multiply by the annuity.... 50

*Answer* £862.

862,00

*To find the value of an annuity depending on the joint continuance of three lives.*

Let  $r$  be the sum of £1 increased by its interest for one year according to any given rate of interest. And let  $A$  be the number of persons represented, in table 8, as living at the age of the youngest life given. And  $A^1$ , the number of persons represented in the said table to be living at the age of the youngest life + 1 year; and  $A^2, A^3, A^4, A^5, A^6, A^7$ , &c. the numbers represented living at the said age. + 2 + 3 + 4 + 5 + 6 + 7 years, &c. respectively.

And let  $B$  be the number of persons represented in the said table as living at the age of the second or next older age; and  $B^1, B^2, B^3, B^4, B^5, B^6, B^7$ , &c. the numbers represented living at the second age. + 1 + 2 + 3 + 4 + 5 + 6 + 7 years, &c. respectively.

And let  $C$  be the number of persons represented to be living at the third or oldest age; and  $C^1, C^2, C^3, C^4, C^5, C^6, C^7$ , &c. the numbers represented living at the oldest age. + 1 + 2 + 3 + 4 + 5 + 6 + 7 years, &c. respectively.

Then the present value of an annuity of £1 a year, during the joint continuance of three lives, will be equal to the expression

$$\begin{aligned} & \text{£1} \times \text{the series } \frac{A^1 \times B^1 \times C^1}{A \times B \times C \times r} + \frac{A^2 \times B^2 \times C^2}{A \times B \times C \times r^2} + \frac{A^3 \times B^3 \times C^3}{A \times B \times C \times r^3} \\ & + \frac{A^4 \times B^4 \times C^4}{A \times B \times C \times r^4} + \text{\&c. continued to the end of the table, or equal} \\ & \text{to } \frac{\text{£1}}{A B C} \times \text{the series } \frac{A^1 B^1 C^1}{r} + \frac{A^2 B^2 C^2}{r^2} + \frac{A^3 B^3 C^3}{r^3} + \frac{A^4 B^4 C^4}{r^4} \\ & + \frac{A^5 B^5 C^5}{r^5} + \text{\&c. \&c.} \end{aligned}$$

## EXAMPLES.

1. Required the value of an annuity of £1 per annum for the whole joint continuance of the lives of three persons, each of the age of 92 years, interest 4 per cent.?

Here  $A$  is  $= 24$ ,  $A^1 = 16$ ,  $A^2 = 9$ ,  $A^3 = 4$ , and  $A^4 = 1$ .

And  $r$  is  $= 1,04$ , and  $\frac{1}{r} = \frac{1}{1,04} = ,9615$ , and  $\frac{1}{r^2} = ,9245$ , and  $\frac{1}{r^3} = ,8889$ , and  $\frac{1}{r^4} = ,8548$ , as per table 1.

$$\begin{array}{r}
 \text{Therefore } 16 \times 16 \times 16 \times ,9615 = 3938,3040 \\
 + 9 \times 9 \times 9 \times ,9245 = 673,5605 \\
 + 4 \times 4 \times 4 \times ,8889 = 56,8896 \\
 + 1 \times 1 \times 1 \times ,8548 = \quad ,8548 \\
 \hline
 4669,6089
 \end{array}$$

And 4669,6089 divided by  $24 \times 24 \times 24$  (or 13824)  $= 0,337$  the answer, as per table 27.

2. Required the value of an annuity of £1 per annum during the joint continuance of the lives of three persons, aged 84, 89 and 94 years, interest 5 per cent.?

Here  $A$  is  $= 234$ ,  $A^1 = 186$ ,  $A^2 = 145$

and  $B$  is  $= 62$ ,  $B^1 = 46$ ,  $B^2 = 34$

and  $C$  is  $= 9$ ,  $C^1 = 4$ ,  $C^2 = 1$

And  $r$  is 1,05, and  $\frac{1}{r} = \frac{1}{1,05} = ,952381$ , and  $\frac{1}{r^2} = ,907029$

$$\begin{array}{r}
 \text{Therefore } 186 \times 46 \times 4 \times ,952381 = 32594,2873 \\
 + 145 \times 34 \times 1 \times ,907029 = 4471,6529 \\
 \hline
 37065,9402
 \end{array}$$

And 37065,9402 divided by  $234 \times 62 \times 9$  (or 130572) gives ,284, as per table 28.

3. Required the value of an annuity of £1 for the joint continuance of the lives of three persons, of the ages of 73 years, 83 years and 93 years, interest 4 per cent.?

Here A is = 992,  $A^1 = 912$ ,  $A^2 = 832$ ,  $A^3 = 752$   
 and B is = 289,  $B^1 = 234$ ,  $B^2 = 186$ ,  $B^3 = 145$   
 and C is = 16,  $C^1 = 9$ ,  $C^2 = 4$ ,  $C^3 = 1$

Therefore  $912 \times 234 \times 9 \times ,9615 = 1846726,128$   
 $+ 832 \times 186 \times 4 \times ,9245 = 572272,896$   
 $+ 752 \times 145 \times 1 \times ,8889 = 96925,656$

---

2515924,680

And 2515924,680 divided by  $992 \times 289 \times 16$  (or 4587008) =  
 0,548, the answer, as per table 29.

A computation of the values of three joint lives, whose differences of age are 10 and 20 years; interest 5 per cent.

*As there are 752 persons represented (in table 8) as living at the age of 76 years, 145 living at the age of 86, and 1 at the age of 96; and as there are 832 represented as living at the age of 75, 186 at the age of 85, and 4 at the age of 95,*

The value of an annuity of £1 for the joint continuance of

three lives, aged 75, 85 and 95, is  $\frac{1}{1,05} \times \frac{752 \times 145 \times 1}{832 \times 186 \times 4} = 0,168$

The value of an annuity of £1 for three joint lives, aged 74,

84 and 94, is  $\frac{1}{1,05} \times \frac{832 \times 186 \times 4}{912 \times 234 \times 9} \times \frac{1}{1 + 0,168} = 0,358$

The value of an annuity of £1 for three joint lives, aged 73,

83 and 93, is  $\frac{1}{1,05} \times \frac{912 \times 234 \times 9}{992 \times 289 \times 16} \times \frac{1}{1 + 0,358} = 0,541$

And the value of a like annuity for three joint lives, aged 72,

82 and 92, is  $\frac{1}{1,05} \times \frac{992 \times 289 \times 16}{1072 \times 346 \times 24} \times \frac{1}{1 + 0,541} = 0,756$

do. do. for 71, 81 & 91, is  $\frac{1}{1,05} \times \frac{1072 \times 346 \times 24}{1152 \times 406 \times 34} \times 1,756 = 0,936$

— 70, 80 & 90, is  $\frac{1}{1,05} \times \frac{1152 \times 406 \times 34}{1232 \times 469 \times 46} \times 1,936 = 1,103$

— 69, 79 & 89, is  $\frac{1}{1,05} \times \frac{1232 \times 469 \times 46}{1312 \times 534 \times 62} \times 2,103 = 1,225$

— 68, 78 & 88, is  $\frac{1}{1,05} \times \frac{1312 \times 534 \times 62}{1392 \times 602 \times 83} \times 2,225 = 1,323$

— 67, 77 & 87, is  $\frac{1}{1,05} \times \frac{1392 \times 602 \times 83}{1472 \times 675 \times 111} \times 2,323 = 1,395$

— 66, 76 & 86, is  $\frac{1}{1,05} \times \frac{1472 \times 675 \times 111}{1552 \times 752 \times 145} \times 2,395 = 1,486$

— 65, 75 & 85, is  $\frac{1}{1,05} \times \frac{1552 \times 752 \times 145}{1632 \times 832 \times 186} \times 2,486 = 1,586$

*By the above method, the following tables, for three joint lives, were calculated.*

## TABLE XXVII.

Shewing the values of 3 equal joint lives, reckoning interest at 4 per cent.

| Ages. |    |    | Value at<br>4 per Cent. | Ages. |    |    | Value at<br>4 per Cent. | Ages. |    |    | Value at<br>4 per Cent. |
|-------|----|----|-------------------------|-------|----|----|-------------------------|-------|----|----|-------------------------|
| 1     | 1  | 1  | 5,309                   | 33    | 33 | 33 | 8,848                   | 65    | 65 | 65 | 3,914                   |
| 2     | 2  | 2  | 8,251                   | 34    | 34 | 34 | 8,718                   | 66    | 66 | 66 | 3,733                   |
| 3     | 3  | 3  | 9,632                   | 35    | 35 | 35 | 8,585                   | 67    | 67 | 67 | 3,550                   |
| 4     | 4  | 4  | 10,661                  | 36    | 36 | 36 | 8,448                   | 68    | 68 | 68 | 3,366                   |
| 5     | 5  | 5  | 11,170                  | 37    | 37 | 37 | 8,309                   | 69    | 69 | 69 | 3,181                   |
| 6     | 6  | 6  | 11,707                  | 38    | 38 | 38 | 8,165                   | 70    | 70 | 70 | 2,995                   |
| 7     | 7  | 7  | 12,058                  | 39    | 39 | 39 | 8,017                   | 71    | 71 | 71 | 2,810                   |
| 8     | 8  | 8  | 12,266                  | 40    | 40 | 40 | 7,865                   | 72    | 72 | 72 | 2,627                   |
| 9     | 9  | 9  | 12,298                  | 41    | 41 | 41 | 7,714                   | 73    | 73 | 73 | 2,448                   |
| 10    | 10 | 10 | 12,200                  | 42    | 42 | 42 | 7,567                   | 74    | 74 | 74 | 2,277                   |
| 11    | 11 | 11 | 12,043                  | 43    | 43 | 43 | 7,423                   | 75    | 75 | 75 | 2,119                   |
| 12    | 12 | 12 | 11,865                  | 44    | 44 | 44 | 7,276                   | 76    | 76 | 76 | 1,985                   |
| 13    | 13 | 13 | 11,678                  | 45    | 45 | 45 | 7,126                   | 77    | 77 | 77 | 1,855                   |
| 14    | 14 | 14 | 11,481                  | 46    | 46 | 46 | 6,972                   | 78    | 78 | 78 | 1,720                   |
| 15    | 15 | 15 | 11,274                  | 47    | 47 | 47 | 6,813                   | 79    | 79 | 79 | 1,563                   |
| 16    | 16 | 16 | 11,056                  | 48    | 48 | 48 | 6,650                   | 80    | 80 | 80 | 1,400                   |
| 17    | 17 | 17 | 10,845                  | 49    | 49 | 49 | 6,482                   | 81    | 81 | 81 | 1,245                   |
| 18    | 18 | 18 | 10,656                  | 50    | 50 | 50 | 6,317                   | 82    | 82 | 82 | 1,092                   |
| 19    | 19 | 19 | 10,490                  | 51    | 51 | 51 | 6,161                   | 83    | 83 | 83 | 0,949                   |
| 20    | 20 | 20 | 10,342                  | 52    | 52 | 52 | 6,011                   | 84    | 84 | 84 | 0,860                   |
| 21    | 21 | 21 | 10,222                  | 53    | 53 | 53 | 5,859                   | 85    | 85 | 85 | 0,782                   |
| 22    | 22 | 22 | 10,118                  | 54    | 54 | 54 | 5,705                   | 86    | 86 | 86 | 0,716                   |
| 23    | 23 | 23 | 10,012                  | 55    | 55 | 55 | 5,550                   | 87    | 87 | 87 | 0,662                   |
| 24    | 24 | 24 | 9,905                   | 56    | 56 | 56 | 5,393                   | 88    | 88 | 88 | 0,646                   |
| 25    | 25 | 25 | 9,796                   | 57    | 57 | 57 | 5,235                   | 89    | 89 | 89 | 0,614                   |
| 26    | 26 | 26 | 9,685                   | 58    | 58 | 58 | 5,076                   | 90    | 90 | 90 | 0,563                   |
| 27    | 27 | 27 | 9,572                   | 59    | 59 | 59 | 4,916                   | 91    | 91 | 91 | 0,452                   |
| 28    | 28 | 28 | 9,457                   | 60    | 60 | 60 | 4,755                   | 92    | 92 | 92 | 0,337                   |
| 29    | 29 | 29 | 9,340                   | 61    | 61 | 61 | 4,593                   | 93    | 93 | 93 | 0,185                   |
| 30    | 30 | 30 | 9,221                   | 62    | 62 | 62 | 4,432                   | 94    | 94 | 94 | 0,085                   |
| 31    | 31 | 31 | 9,099                   | 63    | 63 | 63 | 4,263                   | 95    | 95 | 95 | 0,015                   |
| 32    | 32 | 32 | 8,975                   | 64    | 64 | 64 | 4,093                   |       |    |    |                         |

## EXAMPLE.

What is the value of an annuity of £300 per annum, to be enjoyed during the joint continuance of 3 lives, each aged 19, interest 4 per cent.?

The value of £1 annuity, by the above table, is 10.49

Multiply by the annuity. . . . 300

*Answer* £3147

TABLE XXVIII.

Shewing the values of three joint lives whose differences of age are 5 and 10 years, interest 4 and 5 per cent.

| Ages. |    |    | Value at    | Value at   | Ages. |    |    | Value at   | Value at   | Ages. |    |    | Value at   | Value at   |
|-------|----|----|-------------|------------|-------|----|----|------------|------------|-------|----|----|------------|------------|
|       |    |    | 4 per Cent. | 5 p. Cent. |       |    |    | 4 p. Cent. | 5 p. Cent. |       |    |    | 4 p. Cent. | 5 p. Cent. |
| 1     | 6  | 11 | 9,051       | 8,143      | 30    | 35 | 40 | 8,507      | 7,877      | 58    | 63 | 68 | 4,100      | 3,935      |
| 2     | 7  | 12 | 10,547      | 9,488      | 31    | 36 | 41 | 8,369      | 7,758      | 59    | 64 | 69 | 3,921      | 3,769      |
| 3     | 8  | 13 | 11,113      | 10,001     | 32    | 37 | 42 | 8,230      | 7,638      | 60    | 65 | 70 | 3,739      | 3,599      |
| 4     | 9  | 14 | 11,441      | 10,303     | 33    | 38 | 43 | 8,090      | 7,517      | 61    | 66 | 71 | 3,556      | 3,428      |
| 5     | 10 | 15 | 11,518      | 10,381     | 34    | 39 | 44 | 7,947      | 7,393      | 62    | 67 | 72 | 3,373      | 3,257      |
| 6     | 11 | 16 | 11,573      | 10,440     | 35    | 40 | 45 | 7,800      | 7,265      | 63    | 68 | 73 | 3,191      | 3,085      |
| 7     | 12 | 17 | 11,555      | 10,435     | 36    | 41 | 46 | 7,651      | 7,135      | 64    | 69 | 74 | 3,011      | 2,915      |
| 8     | 13 | 18 | 11,492      | 10,389     | 37    | 42 | 47 | 7,500      | 7,003      | 65    | 70 | 75 | 2,834      | 2,748      |
| 9     | 14 | 19 | 11,378      | 10,297     | 38    | 43 | 48 | 7,348      | 6,869      | 66    | 71 | 76 | 2,668      | 2,590      |
| 10    | 15 | 20 | 11,226      | 10,171     | 39    | 44 | 49 | 7,192      | 6,731      | 67    | 72 | 77 | 2,503      | 2,433      |
| 11    | 16 | 21 | 11,062      | 10,003     | 40    | 45 | 50 | 7,033      | 6,591      | 68    | 73 | 78 | 2,336      | 2,273      |
| 12    | 17 | 22 | 10,900      | 9,897      | 41    | 46 | 51 | 6,878      | 6,454      | 69    | 74 | 79 | 2,161      | 2,106      |
| 13    | 18 | 23 | 10,742      | 9,763      | 42    | 47 | 52 | 6,724      | 6,318      | 70    | 75 | 80 | 1,987      | 1,940      |
| 14    | 19 | 24 | 10,587      | 9,633      | 43    | 48 | 53 | 6,569      | 6,180      | 71    | 76 | 81 | 1,825      | 1,784      |
| 15    | 20 | 25 | 10,435      | 9,504      | 44    | 49 | 54 | 6,411      | 6,039      | 72    | 77 | 82 | 1,667      | 1,631      |
| 16    | 21 | 26 | 10,287      | 9,379      | 45    | 50 | 55 | 6,252      | 5,896      | 73    | 78 | 83 | 1,516      | 1,481      |
| 17    | 22 | 27 | 10,146      | 9,260      | 46    | 51 | 56 | 6,094      | 5,755      | 74    | 79 | 84 | 1,388      | 1,360      |
| 18    | 23 | 28 | 10,010      | 9,146      | 47    | 52 | 57 | 5,936      | 5,613      | 75    | 80 | 85 | 1,267      | 1,242      |
| 19    | 24 | 29 | 9,880       | 9,037      | 48    | 53 | 58 | 5,775      | 5,468      | 76    | 81 | 86 | 1,160      | 1,139      |
| 20    | 25 | 30 | 9,754       | 8,931      | 49    | 54 | 59 | 5,612      | 5,320      | 77    | 82 | 87 | 1,061      | 1,042      |
| 21    | 26 | 31 | 9,635       | 8,831      | 50    | 55 | 60 | 5,448      | 5,172      | 78    | 83 | 88 | 0,981      | 0,964      |
| 22    | 27 | 32 | 9,520       | 8,735      | 51    | 56 | 61 | 5,286      | 5,025      | 79    | 84 | 89 | 0,902      | 0,888      |
| 23    | 28 | 33 | 9,403       | 8,637      | 52    | 57 | 62 | 5,125      | 4,879      | 80    | 85 | 90 | 0,812      | 0,800      |
| 24    | 29 | 34 | 9,283       | 8,536      | 53    | 58 | 63 | 4,960      | 4,728      | 81    | 86 | 91 | 0,694      | 0,684      |
| 25    | 30 | 35 | 9,161       | 8,433      | 54    | 59 | 64 | 4,794      | 4,576      | 82    | 87 | 92 | 0,569      | 0,561      |
| 26    | 31 | 36 | 9,036       | 8,328      | 55    | 60 | 65 | 4,623      | 4,419      | 83    | 88 | 93 | 0,421      | 0,416      |
| 27    | 32 | 37 | 8,908       | 8,220      | 56    | 61 | 66 | 4,451      | 4,260      | 84    | 89 | 94 | 0,287      | 0,284      |
| 28    | 33 | 38 | 8,778       | 8,109      | 57    | 62 | 67 | 4,277      | 4,099      | 85    | 90 | 95 | 0,138      | 0,137      |
| 29    | 34 | 39 | 8,644       | 7,995      |       |    |    |            |            |       |    |    |            |            |

## EXAMPLE.

What is the value of an annuity of £100 per annum, to be received during the joint continuance of three lives, aged 18, 23 and 28, reckoning interest at 5 per cent.?

Opposite 18, 23 and 28, and under 5 per cent. is 9,146

Multiply by the annuity.... 100

*Answer* £914. 12s.

914,600

## TABLE XXIX.

Shewing the values of three joint lives whose differences of age are 10 and 20 years, interest 4 and 5 per cent.

| Ages. |    |    | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. | Ages. |    |    | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. | Ages. |    |    | Value at<br>4 p. Cent. | Value at<br>5 p. Cent. |
|-------|----|----|------------------------|------------------------|-------|----|----|------------------------|------------------------|-------|----|----|------------------------|------------------------|
| 1     | 11 | 21 | 8,627                  | 7,806                  | 26    | 36 | 46 | 8,171                  | 7,585                  | 51    | 61 | 71 | 4,032                  | 3,872                  |
| 2     | 12 | 22 | 9,914                  | 8,970                  | 27    | 37 | 47 | 8,027                  | 7,459                  | 52    | 62 | 72 | 3,847                  | 3,699                  |
| 3     | 13 | 23 | 10,344                 | 9,364                  | 28    | 38 | 48 | 7,878                  | 7,330                  | 53    | 63 | 73 | 3,660                  | 3,525                  |
| 4     | 14 | 24 | 10,598                 | 9,600                  | 29    | 39 | 49 | 7,725                  | 7,196                  | 54    | 64 | 74 | 3,477                  | 3,353                  |
| 5     | 15 | 25 | 10,655                 | 9,659                  | 30    | 40 | 50 | 7,571                  | 7,061                  | 55    | 65 | 75 | 3,298                  | 3,184                  |
| 6     | 16 | 26 | 10,708                 | 9,716                  | 31    | 41 | 51 | 7,420                  | 6,929                  | 56    | 66 | 76 | 3,128                  | 3,025                  |
| 7     | 17 | 27 | 10,700                 | 9,719                  | 32    | 42 | 52 | 7,272                  | 6,799                  | 57    | 67 | 77 | 2,959                  | 2,865                  |
| 8     | 18 | 28 | 10,654                 | 9,687                  | 33    | 43 | 53 | 7,123                  | 6,668                  | 58    | 68 | 78 | 2,785                  | 2,701                  |
| 9     | 19 | 29 | 10,562                 | 9,615                  | 34    | 44 | 54 | 6,971                  | 6,534                  | 59    | 69 | 79 | 2,598                  | 2,523                  |
| 10    | 20 | 30 | 10,438                 | 9,512                  | 35    | 45 | 55 | 6,816                  | 6,397                  | 60    | 70 | 80 | 2,408                  | 2,342                  |
| 11    | 21 | 31 | 10,305                 | 9,402                  | 36    | 46 | 56 | 6,658                  | 6,257                  | 61    | 71 | 81 | 2,224                  | 2,165                  |
| 12    | 22 | 32 | 10,170                 | 9,290                  | 37    | 47 | 57 | 6,497                  | 6,113                  | 62    | 72 | 82 | 2,044                  | 1,992                  |
| 13    | 23 | 33 | 10,031                 | 9,174                  | 38    | 48 | 58 | 6,332                  | 5,970                  | 63    | 73 | 83 | 1,875                  | 1,830                  |
| 14    | 24 | 34 | 9,887                  | 9,053                  | 39    | 49 | 59 | 6,164                  | 5,820                  | 64    | 74 | 84 | 1,743                  | 1,703                  |
| 15    | 25 | 35 | 9,738                  | 8,927                  | 40    | 50 | 60 | 5,994                  | 5,667                  | 65    | 75 | 85 | 1,623                  | 1,586                  |
| 16    | 26 | 36 | 9,584                  | 8,795                  | 41    | 51 | 61 | 5,827                  | 5,516                  | 66    | 76 | 86 | 1,519                  | 1,486                  |
| 17    | 27 | 37 | 9,429                  | 8,663                  | 42    | 52 | 62 | 5,662                  | 5,366                  | 67    | 77 | 87 | 1,425                  | 1,395                  |
| 18    | 28 | 38 | 9,278                  | 8,534                  | 43    | 53 | 63 | 5,494                  | 5,213                  | 68    | 78 | 88 | 1,350                  | 1,323                  |
| 19    | 29 | 39 | 9,131                  | 8,408                  | 44    | 54 | 64 | 5,322                  | 5,058                  | 69    | 79 | 89 | 1,248                  | 1,225                  |
| 20    | 30 | 40 | 8,986                  | 8,284                  | 45    | 55 | 65 | 5,145                  | 4,897                  | 70    | 80 | 90 | 1,122                  | 1,103                  |
| 21    | 31 | 41 | 8,850                  | 8,167                  | 46    | 56 | 66 | 4,965                  | 4,734                  | 71    | 81 | 91 | 0,951                  | 0,936                  |
| 22    | 32 | 42 | 8,718                  | 8,055                  | 47    | 57 | 67 | 4,782                  | 4,566                  | 72    | 82 | 92 | 0,767                  | 0,756                  |
| 23    | 33 | 43 | 8,586                  | 7,942                  | 48    | 58 | 68 | 4,597                  | 4,395                  | 73    | 83 | 93 | 0,548                  | 0,541                  |
| 24    | 34 | 44 | 8,451                  | 7,826                  | 49    | 59 | 69 | 4,408                  | 4,221                  | 74    | 84 | 94 | 0,362                  | 0,358                  |
| 25    | 35 | 45 | 8,313                  | 7,707                  | 50    | 60 | 70 | 4,219                  | 4,046                  | 75    | 85 | 95 | 0,169                  | 0,168                  |

## EXAMPLE.

I want to dispose of an annuity of £50 per annum, which will be regularly paid to the purchaser during the joint continuance of three lives, aged 28, 38 and 48; what ought I to receive for the same, allowing the purchaser 5 per cent. for his money?

Opposite 28, 38 and 48, and under 5 per cent. is 7,33

Multiply by the annuity.... 50

Answer £366. 10s. 366,50

*To find the value of the longest of any three lives.*

### RULE.

“ From the sum of the values of all the single lives, subtract the sum  
 “ of the values of all the joint lives combined two and two.  
 “ Then to the remainder add the value of the three joint lives,  
 “ and this last sum will be the value of the longest of the three  
 “ lives.”

### EXAMPLE.

What is the value of an annuity of £1 on the longest of three lives, aged 10, 20 and 30, interest being at 5 per cent. ?

The sum of the values of three single lives, whose ages are 10, 20 and 30, is by table 10, 42,218. The value of two joint lives, whose ages are 10 and 20, is 11,906 ; of two joint lives, whose ages are 10 and 30, is 11,304; of two joint lives, whose ages are 20 and 30, is 10,707. And the sum of these three values is 33,917. This sum subtracted from 42,218, leaves 8,301, which remainder added to 9,512 (the value of the three joint lives by table 29), gives 17,813, the value of the longest of the three lives, as per the following table.

## TABLE XXX.

Shewing the value of an annuity held on the longest of three lives.

| Ages. |    |    | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. |    |    | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|----|----|------------------------|------------------------|------------------------|-------|----|----|------------------------|------------------------|------------------------|
| 10    | 10 | 10 | 26,642                 | 21,938                 | 18,350                 | 20    | 20 | 60 | 23,372                 | 19,740                 | 16,973                 |
| 10    | 10 | 20 | 26,195                 | 21,658                 | 18,282                 | 20    | 20 | 70 | 23,153                 | 19,538                 | 16,786                 |
| 10    | 10 | 30 | 25,812                 | 21,400                 | 18,022                 |       |    |    |                        |                        |                        |
| 10    | 10 | 40 | 25,420                 | 21,116                 | 17,894                 | 20    | 30 | 30 | 23,980                 | 20,116                 | 17,293                 |
| 10    | 10 | 50 | 25,340                 | 20,835                 | 17,669                 | 20    | 30 | 40 | 23,416                 | 19,710                 | 16,980                 |
| 10    | 10 | 60 | 25,003                 | 20,782                 | 17,624                 | 20    | 30 | 50 | 22,795                 | 19,390                 | 16,764                 |
| 10    | 10 | 70 | 25,007                 | 20,781                 | 17,620                 | 20    | 30 | 60 | 22,470                 | 19,119                 | 16,535                 |
|       |    |    |                        |                        |                        | 20    | 30 | 70 | 22,390                 | 19,045                 | 16,466                 |
| 10    | 20 | 20 | 25,707                 | 21,263                 | 18,054                 |       |    |    |                        |                        |                        |
| 10    | 20 | 30 | 25,121                 | 20,961                 | 17,813                 | 20    | 40 | 40 | 22,762                 | 19,259                 | 16,685                 |
| 10    | 20 | 40 | 24,645                 | 20,606                 | 17,576                 | 20    | 40 | 50 | 22,053                 | 18,873                 | 16,306                 |
| 10    | 20 | 50 | 24,528                 | 20,363                 | 17,388                 | 20    | 40 | 60 | 21,697                 | 18,582                 | 16,157                 |
| 10    | 20 | 60 | 24,292                 | 20,333                 | 17,363                 | 20    | 40 | 70 | 21,410                 | 18,323                 | 15,920                 |
| 10    | 20 | 70 | 24,081                 | 20,132                 | 17,173                 |       |    |    |                        |                        |                        |
|       |    |    |                        |                        |                        | 20    | 50 | 50 | 21,396                 | 18,380                 | 16,026                 |
| 10    | 30 | 30 | 24,785                 | 20,635                 | 17,630                 | 20    | 50 | 60 | 20,910                 | 17,986                 | 15,700                 |
| 10    | 30 | 40 | 24,286                 | 20,274                 | 17,368                 | 20    | 50 | 70 | 20,594                 | 17,704                 | 15,446                 |
| 10    | 30 | 50 | 23,780                 | 20,021                 | 17,176                 |       |    |    |                        |                        |                        |
| 10    | 30 | 60 | 23,550                 | 19,827                 | 17,010                 | 20    | 60 | 60 | 20,491                 | 17,671                 | 15,243                 |
| 10    | 30 | 70 | 23,472                 | 19,746                 | 16,930                 | 20    | 60 | 70 | 20,045                 | 17,281                 | 15,121                 |
|       |    |    |                        |                        |                        |       |    |    |                        |                        |                        |
| 10    | 40 | 40 | 23,746                 | 19,851                 | 17,055                 | 20    | 70 | 70 | 19,606                 | 16,916                 | 14,811                 |
| 10    | 40 | 50 | 23,137                 | 19,564                 | 16,845                 |       |    |    |                        |                        |                        |
| 10    | 40 | 60 | 22,878                 | 19,351                 | 16,665                 | 30    | 30 | 30 | 23,266                 | 19,625                 | 16,997                 |
| 10    | 40 | 70 | 22,663                 | 19,146                 | 16,476                 | 30    | 30 | 40 | 22,586                 | 19,181                 | 16,647                 |
|       |    |    |                        |                        |                        | 30    | 30 | 50 | 21,896                 | 18,793                 | 16,356                 |
| 10    | 50 | 50 | 22,647                 | 19,202                 | 16,579                 | 30    | 30 | 60 | 21,512                 | 18,478                 | 16,094                 |
| 10    | 50 | 60 | 22,242                 | 18,869                 | 16,299                 | 30    | 30 | 70 | 21,376                 | 18,357                 | 15,987                 |
| 10    | 50 | 70 | 22,028                 | 18,664                 | 16,111                 |       |    |    |                        |                        |                        |
|       |    |    |                        |                        |                        | 30    | 40 | 40 | 21,814                 | 18,628                 | 16,255                 |
| 10    | 60 | 60 | 22,004                 | 18,705                 | 15,919                 | 30    | 40 | 50 | 21,008                 | 18,168                 | 15,890                 |
| 10    | 60 | 70 | 21,648                 | 18,376                 | 15,896                 | 30    | 40 | 60 | 20,570                 | 17,815                 | 15,624                 |
|       |    |    |                        |                        |                        | 30    | 40 | 70 | 20,236                 | 17,517                 | 15,357                 |
| 10    | 70 | 70 | 21,308                 | 18,110                 | 15,672                 |       |    |    |                        |                        |                        |
|       |    |    |                        |                        |                        | 30    | 50 | 50 | 20,227                 | 17,585                 | 15,476                 |
| 20    | 20 | 20 | 25,152                 | 20,836                 | 17,836                 | 30    | 50 | 60 | 19,636                 | 17,109                 | 15,085                 |
| 20    | 20 | 30 | 24,508                 | 20,599                 | 17,635                 | 30    | 50 | 70 | 19,267                 | 16,783                 | 14,797                 |
| 20    | 20 | 40 | 23,941                 | 20,185                 | 17,325                 |       |    |    |                        |                        |                        |
| 20    | 20 | 50 | 23,723                 | 19,858                 | 17,070                 | 30    | 60 | 60 | 19,107                 | 16,708                 | 14,561                 |

| Ages. |    |    | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. | Ages. |    |    | Value at<br>3 perCent. | Value at<br>4 perCent. | Value at<br>5 perCent. |
|-------|----|----|------------------------|------------------------|------------------------|-------|----|----|------------------------|------------------------|------------------------|
| 30    | 60 | 70 | 18,587                 | 16,257                 | 14,378                 | 50    | 50 | 50 | 17,913                 | 15,866                 | 14,237                 |
|       |    |    |                        |                        |                        | 50    | 50 | 60 | 16,974                 | 15,154                 | 13,632                 |
| 30    | 70 | 70 | 18,045                 | 15,805                 | 14,006                 | 50    | 50 | 70 | 16,368                 | 14,633                 | 13,180                 |
| 40    | 40 | 40 | 20,909                 | 17,996                 | 15,820                 | 50    | 60 | 60 | 15,994                 | 14,394                 | 12,847                 |
| 40    | 40 | 50 | 19,974                 | 17,446                 | 15,393                 | 50    | 60 | 70 | 15,187                 | 13,688                 | 12,428                 |
| 40    | 40 | 60 | 19,414                 | 16,997                 | 15,031                 |       |    |    |                        |                        |                        |
| 40    | 40 | 70 | 19,008                 | 16,640                 | 14,715                 | 50    | 70 | 70 | 14,269                 | 12,935                 | 11,792                 |
| 40    | 50 | 50 | 19,020                 | 16,731                 | 14,859                 | 60    | 60 | 60 | 14,602                 | 13,194                 | 11,980                 |
| 40    | 50 | 60 | 18,282                 | 16,181                 | 14,405                 | 60    | 60 | 70 | 13,543                 | 12,384                 | 11,375                 |
| 40    | 50 | 70 | 17,817                 | 15,736                 | 14,024                 | 60    | 70 | 70 | 12,280                 | 11,319                 | 10,471                 |
| 40    | 60 | 60 | 17,567                 | 15,590                 | 13,746                 |       |    |    |                        |                        |                        |
| 40    | 60 | 70 | 16,930                 | 15,043                 | 13,481                 | 70    | 70 | 70 | 10,540                 | 9,817                  | 9,198                  |
| 40    | 70 | 70 | 16,237                 | 14,464                 | 12,990                 |       |    |    |                        |                        |                        |

## EXAMPLE.

Required the value of an annuity of £50 per annum, held on the longest of three lives, aged 30, 50 and 70, reckoning interest 5 per cent.?

Opposite 30, 50 and 70, and under 5 per cent. is 14,797

Multiply by the annuity.... 50

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739,850

*Answer* £739. 17s.

# REVERSIONARY ANNUITIES,

ASSURANCES ON LIVES, &c.

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Reversion, is defined to be returning of lands, &c. into the possession of the donor or his heirs. It is further said to be an interest in lands, when the possession of it fails, or where the estate, which was for a time parted with, returns to the grantors or their heirs. But, according to the usual definition of a reversion, it is the residue of an estate left in the grantor, after a particular estate granted away ceases, continuing in the grantor of such an estate.

Remainder, in law, is an estate in lands, tenements, or rents, not to be enjoyed till after a term of years or another person's decease; thus, a person grants lands or tenements to one person, for a term of years or for life, and the remainder to another person for life or in fee. There is this difference between a remainder and a reversion; in case of a reversion, the estate granted, after the limited time, reverts to the grantor or his heirs; but by a remainder, it goes to some third person or a stranger.

By assuring a life, is meant obtaining security for a sum of money to be received should the life drop, in consideration of such a payment made to the assurer, as is a sufficient compensation for the loss and hazard to which he exposes himself. The sum at which this compensation should be valued, depends, first, on the rate of interest at which money is improved; and, second, on the probability of the duration of the life to be assured. If interest is high, and also the probability high of the duration of the life, the value of the assurance will be proportionably low. On the contrary, if the rate of interest be low, and the probability of living also low, the value of the assurance will be proportionably high.

There are several offices in Britain for insuring lives, but the premiums paid to insurers are generally higher than any computation, founded on observations concerning the probabilities of human life, will warrant.

## PROBLEM I.

*To find the value of the reversion of an annuity for ever after any given term.*

## RULE.

From the perpetuity subtract the present value of £1 per annum for the given term, found by table 2, and the remainder will be the answer.

## QUESTION.

What is the value of the perpetuity of £1 per annum, to be enjoyed 15 years hence, interest reckoned at 5 per cent. ?

Interest being 5 per cent. the perpetuity, by table 2, is 20,0000

The value of an annuity for 15 years, by ditto..... 10,3796

*Answer*, as per the following table.. 9,6204

## TABLE XXXI.

Shewing the present value of the reversion of a perpetuity, after any given term, not exceeding 50 years.

| After these Years. | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. | After these Years. | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 p. Cent. |
|--------------------|----------------------|----------------------|----------------------|--------------------|----------------------|----------------------|---------------------|
| 1                  | 32,362               | 24,038               | 19,048               | 15                 | 21,395               | 13,882               | 9,620               |
| 2                  | 31,420               | 23,114               | 18,141               | 16                 | 20,772               | 13,348               | 9,162               |
| 3                  | 30,505               | 22,225               | 17,277               | 17                 | 20,167               | 12,834               | 8,726               |
| 4                  | 29,616               | 21,370               | 16,454               | 18                 | 19,580               | 12,341               | 8,310               |
| 5                  | 28,754               | 20,548               | 15,671               | 19                 | 19,009               | 11,866               | 7,915               |
| 6                  | 27,916               | 19,758               | 14,924               | 20                 | 18,456               | 11,410               | 7,538               |
| 7                  | 27,103               | 18,998               | 14,214               | 21                 | 17,918               | 10,971               | 7,179               |
| 8                  | 26,314               | 18,267               | 13,537               | 22                 | 17,396               | 10,549               | 6,837               |
| 9                  | 25,547               | 17,565               | 12,892               | 23                 | 16,890               | 10,143               | 6,511               |
| 10                 | 24,803               | 16,889               | 12,278               | 24                 | 16,398               | 9,753                | 6,201               |
| 11                 | 24,081               | 16,239               | 11,694               | 25                 | 15,920               | 9,378                | 5,906               |
| 12                 | 23,379               | 15,615               | 11,137               | 26                 | 15,456               | 9,017                | 5,625               |
| 13                 | 22,698               | 15,014               | 10,606               | 27                 | 15,006               | 8,670                | 5,357               |
| 14                 | 22,037               | 14,437               | 10,101               | 28                 | 14,569               | 8,337                | 5,102               |

| After<br>these<br>Years. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | After<br>these<br>Years. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|--------------------------|-------------------------|-------------------------|-------------------------|--------------------------|-------------------------|-------------------------|-------------------------|
| 29                       | 14,145                  | 8,016                   | 4,859                   | 40                       | 10,218                  | 5,207                   | 2,841                   |
| 30                       | 13,733                  | 7,708                   | 4,627                   | 41                       | 9,921                   | 5,007                   | 2,706                   |
| 31                       | 13,333                  | 7,411                   | 4,407                   | 42                       | 9,632                   | 4,814                   | 2,577                   |
| 32                       | 12,944                  | 7,126                   | 4,197                   | 43                       | 9,351                   | 4,629                   | 2,454                   |
| 33                       | 12,567                  | 6,852                   | 3,997                   | 44                       | 9,079                   | 4,451                   | 2,337                   |
| 34                       | 12,201                  | 6,589                   | 3,807                   | 45                       | 8,815                   | 4,280                   | 2,226                   |
| 35                       | 11,846                  | 6,335                   | 3,626                   | 46                       | 8,558                   | 4,115                   | 2,120                   |
| 36                       | 11,501                  | 6,092                   | 3,453                   | 47                       | 8,309                   | 3,957                   | 2,019                   |
| 37                       | 11,166                  | 5,857                   | 3,289                   | 48                       | 8,067                   | 3,805                   | 1,923                   |
| 38                       | 10,841                  | 5,632                   | 3,132                   | 49                       | 7,832                   | 3,658                   | 1,831                   |
| 39                       | 10,525                  | 5,415                   | 2,983                   | 50                       | 7,603                   | 3,518                   | 1,744                   |

## EXAMPLE.

What is the present value of the perpetuity of £54 per annum, to be enjoyed 10 years hence, reckoning interest 4 per cent.?

Opposite 10 and under 4 per cent. is 16,889

Multiply by the annuity . . . 54

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67556

84445

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912,006

*Answer* £912. Os. 1d.

## PROBLEM II.

*To find the value of a reversionary estate in fee, after the life of a person of a given age.*

## RULE.

Subtract the value of the life in possession from the perpetuity, then multiply the remainder by the rent, and the product will be the value required.

## QUESTION.

An estate, value £1000, falls to a person on the death of a life, aged 55, what is the present value thereof, reckoning interest 5 per cent.?

Interest being 5 per cent. the perpetuity is..... 20,000

The value of £1 annuity, for a life of 55, by table 10, is 9,382

The value of £1 per annum, as per following table = 10,618

Multiply by the rent 50

*Answer* £530. 18s.

530,900

## TABLE XXXII.

Shewing the present value of a reversionary estate in fee, after the life of a person of a given age.

| Age in<br>pos-<br>session | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Age in<br>pos-<br>session. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|---------------------------|-------------------------|-------------------------|-------------------------|----------------------------|-------------------------|-------------------------|-------------------------|
| 5                         | 12,860                  | 7,752                   | 5,173                   | 51                         | 21,150                  | 13,943                  | 9,903                   |
| 10                        | 12,670                  | 7,477                   | 4,861                   | 52                         | 21,403                  | 14,151                  | 10,075                  |
| 15                        | 13,676                  | 8,209                   | 5,412                   | 53                         | 21,659                  | 14,363                  | 10,252                  |
| 20                        | 14,695                  | 8,967                   | 5,993                   | 54                         | 21,919                  | 14,579                  | 10,433                  |
| 25                        | 15,519                  | 9,562                   | 6,433                   | 55                         | 22,183                  | 14,799                  | 10,618                  |
| 30                        | 16,411                  | 10,219                  | 6,928                   | 56                         | 22,451                  | 15,023                  | 10,807                  |
| 35                        | 17,395                  | 10,961                  | 7,498                   | 57                         | 22,722                  | 15,251                  | 11,001                  |
| 40                        | 18,485                  | 11,803                  | 8,163                   | 58                         | 22,996                  | 15,484                  | 11,199                  |
| 45                        | 19,641                  | 12,717                  | 8,895                   | 59                         | 23,275                  | 15,720                  | 11,401                  |
| 50                        | 20,897                  | 13,736                  | 9,731                   | 60                         | 23,556                  | 15,961                  | 11,608                  |

| Age in<br>pos-<br>session | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Age in<br>pos-<br>session | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|---------------------------|-------------------------|-------------------------|-------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
| 61                        | 23,840                  | 16,205                  | 11,819                  | 73                        | 27,539                  | 19,493                  | 14,755                  |
| 62                        | 24,128                  | 16,453                  | 12,034                  | 74                        | 27,842                  | 19,770                  | 15,010                  |
| 63                        | 24,423                  | 16,709                  | 12,253                  | 75                        | 28,134                  | 20,038                  | 15,256                  |
| 64                        | 24,722                  | 16,970                  | 12,486                  | 76                        | 28,408                  | 20,290                  | 15,489                  |
| 65                        | 25,029                  | 17,239                  | 12,724                  | 77                        | 28,681                  | 20,543                  | 15,723                  |
| 66                        | 25,339                  | 17,512                  | 12,966                  | 78                        | 28,961                  | 20,803                  | 15,965                  |
| 67                        | 25,651                  | 17,789                  | 13,213                  | 79                        | 29,256                  | 21,079                  | 16,224                  |
| 68                        | 25,966                  | 18,070                  | 13,464                  | 80                        | 29,552                  | 21,357                  | 16,485                  |
| 69                        | 26,282                  | 18,753                  | 13,719                  | 85                        | 30,713                  | 22,457                  | 17,529                  |
| 70                        | 26,599                  | 18,639                  | 13,977                  | 90                        | 31,539                  | 23,242                  | 18,277                  |
| 71                        | 26,915                  | 18,925                  | 14,236                  | 95                        | 32,091                  | 24,760                  | 19,762                  |
| 72                        | 27,230                  | 19,210                  | 14,496                  |                           |                         |                         |                         |

## EXAMPLE.

What is the value of a reversionary estate, value £2500, after the life of a person aged 60, reckoning interest 4 per cent. ?

Opposite 60 and under 4 per cent. is . . . . . 15,961

Multiply by the rent, which at 4 per cent. is 100

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1596,1

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*Answer* £1596. 2s.

### PROBLEM III.

*To find the value of a reversionary estate in fee after the decease of either of two given lives.*

#### RULE.

Subtract the value of the lives in possession from the perpetuity, then multiply the remainder by the rent, and the product will be the value required.

#### QUESTION.

An estate, value £400, falls to a person on the extinction of either of two lives, aged 40 and 60; what is the present value thereof, reckoning interest 4 per cent.?

The interest being 4 per cent. the perpetuity is 25,000

The value of the two lives, by table 15, is . . . 7,490

The value of £1 per annum, as per the following table = 17,510

Multiply by the rent, which at 4 per cent. is 16

10506

1751

*Answer* £280. 3s. 2½d.

280,16

### TABLE XXXIII.

Shewing the present value of a reversionary estate in fee, after the extinction of either of two given lives.

| Ages in possession. |    | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. | Ages in possession. |    | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. |
|---------------------|----|----------------------|----------------------|----------------------|---------------------|----|----------------------|----------------------|----------------------|
| 10                  | 10 | 16,994               | 10,723               | 7,335                | 20                  | 20 | 19,200               | 12,465               | 8,768                |
| 10                  | 20 | 18,182               | 11,645               | 8,094                | 20                  | 30 | 20,047               | 13,127               | 9,293                |
| 10                  | 30 | 19,183               | 12,414               | 8,696                | 20                  | 40 | 21,237               | 14,076               | 10,063               |
| 10                  | 40 | 20,542               | 13,487               | 9,558                | 20                  | 50 | 22,810               | 15,370               | 11,139               |
| 10                  | 50 | 22,289               | 14,915               | 10,740               | 20                  | 60 | 24,736               | 17,005               | 12,537               |
| 10                  | 60 | 24,381               | 16,686               | 12,250               |                     |    |                      |                      |                      |
| 10                  | 70 | 26,986               | 18,992               | 14,300               | 20                  | 70 | 27,184               | 19,174               | 14,468               |
| 10                  | 80 | 29,686               | 21,483               | 16,605               | 20                  | 80 | 29,764               | 21,557               | 16,675               |

| Ages in possession. |    | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. | Ages in possession. |    | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. |
|---------------------|----|----------------------|----------------------|----------------------|---------------------|----|----------------------|----------------------|----------------------|
| 30                  | 30 | 20,744               | 13,687               | 9,745                | 50                  | 50 | 24,619               | 16,919               | 12,478               |
| 30                  | 40 | 21,765               | 14,510               | 10,424               | 50                  | 60 | 25,872               | 18,011               | 13,432               |
| 30                  | 50 | 23,173               | 15,679               | 11,404               | 50                  | 70 | 27,751               | 19,694               | 14,946               |
| 30                  | 60 | 24,955               | 17,198               | 12,708               | 50                  | 80 | 29,971               | 21,753               | 16,860               |
| 30                  | 70 | 27,290               | 19,271               | 14,558               |                     |    |                      |                      |                      |
| 30                  | 80 | 29,803               | 21,594               | 16,710               | 60                  | 60 | 26,727               | 18,774               | 14,112               |
|                     |    |                      |                      |                      | 60                  | 70 | 28,194               | 20,100               | 15,320               |
| 40                  | 40 | 22,569               | 15,180               | 10,984               | 60                  | 80 | 30,136               | 21,908               | 17,008               |
| 40                  | 50 | 23,743               | 16,166               | 11,823               |                     |    |                      |                      |                      |
| 40                  | 60 | 25,308               | 17,510               | 12,985               | 70                  | 70 | 29,072               | 20,913               | 16,070               |
| 40                  | 70 | 27,462               | 19,429               | 14,702               |                     |    |                      |                      |                      |
| 40                  | 80 | 29,864               | 21,651               | 16,764               |                     |    |                      |                      |                      |

## EXAMPLE.

What is the value of the reversion of an estate, value £500, to be enjoyed after the death of either of two persons, aged 30 and 40, reckoning interest 5 per cent.?

Opposite 30 and 40, and under 5 per cent. is 10,424

Interest being 5 per cent. the rent is 25

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52120

20818

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260,600

*Answer* £260. 12s.

## PROBLEM IV.

*To find the value of the reversion of an annuity of one life after another.*

## RULE.

From the value of the life in expectation, subtract the value of the two joint lives, and the remainder will be the value of the reversion of £1 per annum.

## QUESTION.

A man and his wife, each 40 years of age, are desirous of securing an annuity to the latter after the death of the former, provided she be the survivor; what is the present value thereof, reckoning interest 5 per cent.?

The value of a single life, aged 40, by table 10, is 11,837

Ditto of two joint lives, each 40, by table 11, is 9,016

The value of £1 per annum, as per the following table, 2,821

## TABLE XXXIV.

Shewing the value of the reversion of an annuity on a single life, after any other single life in possession.

| Age of<br>the Ex-<br>pectant. | Age of<br>the Pos-<br>sessor. | Value at<br>3p.Cent. | Value at<br>4p.Cent. | Value at<br>5p.Cent. | Age of<br>the Ex-<br>pectant. | Age of<br>the Pos-<br>sessor. | Value at<br>3p.Cent. | Value at<br>4p.Cent. | Val. at<br>5p.Ct. |
|-------------------------------|-------------------------------|----------------------|----------------------|----------------------|-------------------------------|-------------------------------|----------------------|----------------------|-------------------|
| 10                            | 30                            | 6,513                | 4,937                | 3,835                | 30                            | 30                            | 4,333                | 3,468                | 2,817             |
|                               | 40                            | 7,872                | 6,010                | 4,697                |                               | 40                            | 5,354                | 4,291                | 3,496             |
|                               | 50                            | 9,619                | 7,438                | 5,879                |                               | 50                            | 6,762                | 5,460                | 4,476             |
|                               | 60                            | 11,711               | 9,209                | 7,389                |                               | 60                            | 8,544                | 6,979                | 5,780             |
|                               | 70                            | 14,316               | 11,515               | 9,439                |                               | 70                            | 10,879               | 9,052                | 7,630             |
|                               | 80                            | 17,016               | 14,006               | 11,744               |                               | 80                            | 13,392               | 11,375               | 9,782             |
| 20                            | 30                            | 5,370                | 4,160                | 3,300                | 40                            | 30                            | 3,280                | 2,707                | 2,261             |
|                               | 40                            | 6,542                | 5,109                | 4,070                |                               | 40                            | 4,084                | 3,377                | 2,821             |
|                               | 50                            | 8,115                | 6,403                | 5,146                |                               | 50                            | 5,258                | 4,363                | 3,660             |
|                               | 60                            | 10,041               | 8,038                | 6,544                |                               | 60                            | 6,823                | 5,707                | 4,822             |
|                               | 70                            | 12,489               | 10,207               | 8,475                |                               | 70                            | 8,977                | 7,626                | 6,539             |
|                               | 80                            | 15,069               | 12,590               | 10,682               |                               | 80                            | 11,379               | 9,848                | 8,601             |

| Age of<br>the Ex-<br>pectant. | Age of<br>the Pos-<br>sessor. | Value at<br>3 p.Cent | Value at<br>4 p.Cent | Value at<br>5 p.Cent | Age of<br>the Ex-<br>pectant. | Age of<br>the Pos-<br>sessor. | Value at<br>3 p.Cent | Value at<br>4 p.Cent | Value at<br>5 p.Cent |
|-------------------------------|-------------------------------|----------------------|----------------------|----------------------|-------------------------------|-------------------------------|----------------------|----------------------|----------------------|
| 50                            | 30                            | 2,276                | 1,943                | 1,673                | 60                            | 30                            | 1,399                | 1,237                | 1,100                |
|                               | 40                            | 2,846                | 2,430                | 2,092                |                               | 40                            | 1,752                | 1,549                | 1,377                |
|                               | 50                            | 3,722                | 3,183                | 2,747                |                               | 50                            | 2,316                | 2,050                | 1,824                |
|                               | 60                            | 4,975                | 4,275                | 3,701                |                               | 60                            | 3,171                | 2,813                | 2,504                |
|                               | 70                            | 6,854                | 5,958                | 5,215                |                               | 70                            | 4,638                | 4,139                | 3,712                |
|                               | 80                            | 9,074                | 8,017                | 7,129                |                               | 80                            | 6,580                | 5,947                | 5,400                |

## EXAMPLE.

What is the present value of an annuity of £50 per annum, to be enjoyed by a life, aged 20, provided it survives another life, aged 50, reckoning interest 5 per cent.?

Opposite 20 and 50, and under 5 per cent. is 5,146

Multiply by the annuity.... 50

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257,300

*Answer* £257. 6s.

## PROBLEM V.

*To find the present value of a reversionary annuity on a single life, to be nominated at the death of a person now in possession.*

### RULE.

Multiply the value of the life in possession by the value of the life to be put in at his decease; divide the product by the perpetuity, and subtract the quotient from the value of the life to be put in, and the remainder will be the answer.

### QUESTION.

A person, aged 60 years, has an annuity for life, and another person, aged 40, is to be nominated at his death; what is the present value of the reversion, reckoning interest 5 per cent.?

The value of a life at 60 is 8,392; the value of a life at 40 is 11,837; their product is 99,336, which divided by 20 (the perpetuity), and the quotient subtracted from 11,837, gives 6,870, the value of £1 per annum, as per the following table.

### TABLE XXXV.

Shewing the present value of a reversionary annuity on a single life, to be nominated at the death of a person now in possession.

| Age in<br>Rever-<br>sion. | Age in<br>Posses-<br>sion. | Value at<br>3p.Cent. | Value at<br>4 p.Cent. | Value at<br>5 p.Cent. | Age in<br>Rever-<br>sion. | Age in<br>Posses-<br>sion. | Value at<br>3p.Cent. | Value at<br>4 p.Cent. | Value at<br>5p.Cent. |
|---------------------------|----------------------------|----------------------|-----------------------|-----------------------|---------------------------|----------------------------|----------------------|-----------------------|----------------------|
| 25                        | 30                         | 8,771                | 6,310                 | 4,700                 | 35                        | 30                         | 7,847                | 5,739                 | 4,331                |
|                           | 40                         | 9,879                | 7,289                 | 5,537                 |                           | 40                         | 8,839                | 6,628                 | 5,103                |
|                           | 50                         | 11,168               | 8,482                 | 6,601                 |                           | 50                         | 9,992                | 7,714                 | 6,083                |
|                           | 60                         | 12,589               | 9,856                 | 7,874                 |                           | 60                         | 11,263               | 8,963                 | 7,256                |
|                           | 70                         | 14,215               | 11,510                | 9,481                 |                           | 70                         | 12,818               | 10,467                | 8,737                |
|                           | 80                         | 15,793               | 13,188                | 11,183                |                           | 80                         | 14,130               | 11,993                | 10,305               |
| 30                        | 30                         | 8,331                | 6,042                 | 4,528                 | 40                        | 30                         | 7,310                | 5,394                 | 4,100                |
|                           | 40                         | 9,384                | 6,978                 | 5,335                 |                           | 40                         | 8,234                | 6,231                 | 4,832                |
|                           | 50                         | 10,609               | 8,121                 | 6,360                 |                           | 50                         | 9,309                | 7,251                 | 5,759                |
|                           | 60                         | 11,959               | 9,437                 | 7,587                 |                           | 60                         | 10,493               | 8,425                 | 6,870                |
|                           | 70                         | 13,503               | 11,020                | 9,135                 |                           | 70                         | 11,848               | 9,839                 | 8,272                |
|                           | 80                         | 15,003               | 12,627                | 10,775                |                           | 80                         | 13,164               | 11,274                | 9,757                |

| Age in<br>Rever-<br>sion. | Age in<br>Posses-<br>sion. | Value at<br>3p.Cent. | Value at<br>4p.Cent. | Value at<br>5p.Cent. | Age in<br>Rever-<br>sion. | Age in<br>Posses-<br>sion. | Value at<br>3p.Cent. | Value at<br>4p.Cent. | Value at<br>5p.Cent. |
|---------------------------|----------------------------|----------------------|----------------------|----------------------|---------------------------|----------------------------|----------------------|----------------------|----------------------|
| 45                        | 30                         | 6,741                | 5,021                | 3,847                | 50                        | 30                         | 6,123                | 4,604                | 3,557                |
|                           | 40                         | 7,593                | 5,799                | 4,533                |                           | 40                         | 6,897                | 5,318                | 4,191                |
|                           | 50                         | 8,584                | 6,749                | 5,403                |                           | 50                         | 7,796                | 6,189                | 4,996                |
|                           | 60                         | 9,676                | 7,842                | 6,445                |                           | 60                         | 8,788                | 7,191                | 5,960                |
|                           | 70                         | 10,926               | 9,158                | 7,761                |                           | 70                         | 9,924                | 8,398                | 7,176                |
|                           | 80                         | 12,139               | 10,493               | 9,153                |                           | 80                         | 11,025               | 9,623                | 8,464                |

## EXAMPLE.

A person, 30 years of age, has an annuity of £100 for his life, and another person, aged 25, is to be nominated at his death ; what is the present value of the reversion, reckoning interest 5 per cent. ?

Opposite 25 and 30, and under 5 per cent. is 4,700

Multiply by the annuity . . . . 100

---

470,000

*Answer* £470.

## PROBLEM VI.

*To find the value of the reversion of an annuity on a single life, after the extinction of two joint lives.*

## RULE.

From the value of the life in expectation, subtract the value of the three joint lives, and the remainder will be the value of the reversion of an annuity of £1 per annum.

## QUESTIONS.

1. What is the value of £50 per annum, to be enjoyed during a life of 26, provided it survives two joint lives of 36 and 46, reckoning interest 4 per cent. ?

Value of a life aged 26, by table 10, is 15,312

Ditto of three joint lives, by table 29, is 8,171

|                               |       |
|-------------------------------|-------|
|                               | 7,141 |
| Multiply by the annuity . . . | 50    |

|                         |         |
|-------------------------|---------|
| <i>Answer</i> £357. 1s. | 357,050 |
|-------------------------|---------|

2. What is the value of an annuity of £1 per annum on the life of a person, aged 20, to be enjoyed by him after the decease of either of his brothers, aged 30 and 40 respectively, interest reckoned at 5 per cent. ?

The value of the single life, by table 10, is 14,007

Ditto of the three joint lives, by table 29, is 8,284

|                             |       |
|-----------------------------|-------|
| <i>Answer</i> £5. 14s. 5½d. | 5,723 |
|-----------------------------|-------|

3. An annuity of £120 per annum is to be enjoyed by a person, aged 46, provided he survives either of two lives, aged 51 and 56, interest reckoned at 5 per cent.

The value of the single life, by table 10, is 10,947

Ditto of the three joint lives, by table 28, is 5,755

|                               |       |
|-------------------------------|-------|
|                               | 5,192 |
| Multiply by the annuity . . . | 120   |

|                              |         |
|------------------------------|---------|
| <i>Answer</i> £623. 0s. 9½d. | 623,040 |
|------------------------------|---------|

## PROBLEM VII.

*To find the value of the reversion of an annuity on a single life, A, after the longest of two other lives, P and Q.*

## RULE.

From the sum of the values of an annuity on the single life A, and on the three joint lives, subtract the sum of the values of an annuity on the two joint lives, A, P, and A, Q; multiply the difference by the annuity, and the product will be the value required.

## QUESTION.

What is the value of an annuity of £100 per annum on the life of a person, aged 20, to be enjoyed by him after the decease of both his brothers, aged 30 and 40 respectively, interest 4 per cent.?

The value of an annuity on the single life, by table 10, is 16,033

Value of the three joint lives, by table 29, is 8,986

---

25,019

The value of two joint lives, aged 20 and 30,

by table 13, is 11,873

Ditto ditto, aged 20 and 40, by table 15, is 10,924

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22,797

---

2,222

Multiply by the annuity . . . 100

---

222,200

*Answer* £222. 4s.

## PROBLEM VIII.

*To find the value of the reversion of an annuity on two joint lives after a single life.*

## RULE.

From the value of the two joint lives in expectation, subtract the value of the three joint lives, and the remainder multiplied by the annuity will be the value of the reversion.

## QUESTIONS.

1. What is the present worth of the reversion of £80 per annum, to be received during the joint continuance of two lives, aged 25 and 35, provided they survive the life of a person, aged 45 years, reckoning interest 4 per cent.?

The value of two lives, aged 25 and 35, by table 13, is 11,217

Ditto of three lives, aged 25, 35 and 45, by table 29, is 8,313

---

2,904

Multiply by the annuity.... 80

---

232,320

*Answer* £232. 6s. 4 $\frac{1}{4}$ d.

2. What is the value of the reversion of an annuity of £1 on two joint lives, aged 30 and 40, after the extinction of a life, aged 50, interest 5 per cent.?

The value of the two joint lives, by table 13, is 9,576

Ditto of the three joint lives, by table 29, is 7,061

---

2,515

*Answer* £2. 10s. 3 $\frac{1}{2}$ d.

## PROBLEM IX.

*To find the value of the reversion of an annuity on the longest of two lives after a single life.*

## RULE.

From the value of the longest of the three lives, subtract the value of the life in possession, and the remainder multiplied by the annuity will be the value of the reversion.

## QUESTIONS.

1. What is the value of an annuity of £100 per annum, to be enjoyed during the longest of two lives, aged 20 and 30, after a life, aged 40, interest 4 per cent.?

The value of the longest of the three lives, by table 30, is 19,710

Ditto of the life in possession, by table 10, is . . . . . 13,197

---

6,513

Multiply by the annuity . . . . . 100

*Answer* £651. 6s.

---

651,300

---

2. What is the value of an annuity of £1 per annum on the longest of two lives, aged 57 and 62, to be enjoyed after a single life, aged 67, interest 5 per cent.?

The sum of the values of the three single lives, by table 10, is 23,752

Ditto of all the joint lives combined two and two, by tables

12 and 13, is 16,194

---

7,558

The value of the three joint lives, by table 28, is 4,099

The value of the longest of the three lives . . . . . 11,657

Deduct the value of the life in possession, by table 10.. 6,787

*Answer* £4. 17s. 4½d.

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4,870

---

## PROBLEM X.

*Two persons, A and B, have a joint annuity, which, after the decease of either of them, is to belong entirely to the survivor for life : to find the value of the right of each in that annuity.*

## RULE.

From the value of an annuity on the life of A or B, subtract half the value of an annuity on the two joint lives ; the remainder will be the share of A or B accordingly.

## QUESTION.

Two persons, aged 20 and 40, have the rent of an estate on the longest of their lives, which is equally divided between them ; what sum ought each of them to receive for his right in the same, reckoning interest 5 per cent.?

The value of a life, aged 20, by table 10, is 14,007

— 40, — is 11,837

Ditto of the two joint lives, by table 15, is 9,937

Therefore  $14,007 - \frac{9,937}{2} = 9,038\frac{1}{2}$ , share of the youngest

and  $11,837 - \frac{9,937}{2} = 6,868\frac{1}{2}$ , share of the oldest.

*The above two values added together, make 15,907, the same as the value on the longest of two lives, aged 20 and 40, as per table 26.*

## PROBLEM XI.

*Two persons, A and B, are in possession of an annuity on the longest of their lives, which, on the decease of either of them, will belong to C and his heirs during the life of the survivor: to find the value of the expectation.*

## RULE.

From the value of the longest of the two lives, subtract the value of the joint continuance of them, and the remainder will be the answer.

## QUESTION.

The ages of the two lives in possession are 20 and 40, and interest 5 per cent. ; what is the value of C's interest ?

The value of the longest of the two lives, found

by rule page 68, or table 26, is 15,907

The value of the two joint lives, by table 15, is 9,937

---

5,970

*Answer* £5. 19s. 4 $\frac{1}{4}$ d. the value of £1 per annum.

## PROBLEM XII.

*To find the value of an annuity for a given term of years, upon the contingency of its ceasing on the extinction of the proposed life or lives, before the expiration of the said given term.*

## RULE.

Multiply the value of an annuity for a life, or lives, greater by the given term than the proposed life or lives, by the present value of £1, to be received at the end of the given term; multiply this product by the probability that the given life or lives will continue so long; subtract this value from the value of the life or lives, and the remainder will be the answer.

## QUESTIONS.

1. A person, 35 years of age, wants to buy an annuity to continue 20 years, on condition that if he dies before the expiration of that term, the annuity to cease; what is the value of such an annuity, reckoning interest 5 per cent.?

A life at 55, by table 10, is 9,382; the present value of £1, to be received at the end of 20 years, by table 1, is ,376889; and the probability that a life of 35 will continue 20 years, is, according to table 8,  $\frac{2448}{4010}$ ; or ,61047.

And  $9,382 \times ,376889 \times ,61047 = 2,158$ , which subtracted from 12,502 (value of the given life by table 10), leaves 10,344, the value of £1 per annum, as required.

2. Two persons, aged 35 and 45, want to purchase an annuity to continue 20 years, but on failure of either of the lives, before the expiration of that term, the annuity to cease; what is the value, reckoning interest 5 per cent.?

The value of two joint lives, one 55 and the other 65, by table 13, is 5,671; the value of £1, due 20 years hence, is, by table 1, ,376889; the probability that a life of 35 shall continue 20 years, by table 8, is  $\frac{2448}{4010}$ , or ,61047; the probability that a life of 45 shall continue 20 years, is  $\frac{1632}{3248}$ , or ,50246; and  $5,671 \times ,376889 \times ,61047 \times ,50246 = 0,655$ , and 0,655 subtracted from 8,921 (the value of two joint lives, aged 35 and 45), leaves 8,266, the value required.

## PROBLEM XIII.

*To find the value of an annuity for a life or lives, to commence after a given term of years, provided the person or persons be then alive.*

## RULE.

Multiply the value of an annuity for a life, or joint lives, greater by the given term than the proposed life or lives, by the present value of £1, to be received at the end of the given term, and this product multiplied by the probability that the given life or lives will continue so long, will be the answer.

## QUESTIONS.

1. A person, 35 years of age, wants to buy an annuity for what may happen to remain of his life after 55 years of age; what is the present value, reckoning interest 5 per cent.?

A life at 55, by table 10, is 9,382; the present value of £1, to be received at the end of 20 years, by table 1, is ,376889; and  $9,382 \times ,376889 = 3,53597$ , the present value of an annuity to be granted to an age of 55 twenty years hence.

Also the probability that a life at 35 will continue 20 years, is, according to table 8,  $\frac{2448}{4010}$ , or ,61047; and  $3,53597 \times ,61047 = 2,1586$ , the answer. Suppose, then, the annuity to be £30, its value is  $2,1586 \times 30 = 64,758$ , or £64. 15s. 2d.

2. Two persons, aged 20 and 40, wish to purchase an annuity for the remainder of their joint lives after 30 years; what ought they to give for the same, reckoning interest 5 per cent.?

The value of an annuity on two joint lives, aged 50 and 70, is, by table 15, 5,054; the value of £1, to be received at the end of 30 years, by table 1, is ,231377; the probability that a person, aged 20, shall attain to the age of 50, by table 8, is  $\frac{2857}{5132}$ ; and the probability that a person, aged 40, shall live 30 years, is  $\frac{1232}{3635}$ . The probability that both these persons shall live 30 years, is equal to  $\frac{2857}{5132}$  multiplied by  $\frac{1232}{3635}$ , that is  $\frac{3519524}{18654520}$ , or ,18868; and  $5,054 \times ,231377 \times ,18868 = ,2206$ , or 4s. 5d. the value of £1 per annum.

*To find the value in annual payments—*

Divide the value of the annuity in a single payment, by unity added to the value of a temporary annuity for one year less than the given term (found by rule, problem 12), and the quotient will be the answer if the first payment is to be made immediately.

## PROBLEM XIV.

*A given annuity, after the decease of A, is to be divided equally between B and C during their joint lives, and then is to go entirely to the last survivor for life: to find the value of B's expectation.*

## RULE.

From the value of the reversion of the life of B after the life of A (found by problem 4), subtract half the value of the reversion of the joint lives, B and C, after the life of A (found by problem 8), and the remainder will be the answer.

## QUESTION.

A, aged 50, enjoys an annuity, which after his decease is to be equally divided between B and C, aged 30 and 40, during their joint lives, and then to go to the last survivor for life; what is the value of B's expectation, interest 5 per cent.?

Value of a life, aged 30, by table 10, is 13,072

Ditto of two joint lives, aged 30 and 50, by — 15, is 8,596

Value of the reversion of B's life after A's = 4,476

Value of the reversion of the joint lives, B and C, after the life of A (found by problem 8, page 92,) is 2,515; and  $4,476 - \frac{2,515}{2} = 3,219$ , the answer required.

Suppose then the annuity to be £100 per annum, the value will be  $3,219 \times 100 = £321. 18s.$

## PROBLEM XV.

*D and his heirs, as soon as any two of three joint lives, A, B and C, become extinct, are to enter upon an annuity, and to enjoy the same during the life of the survivor : to find the value of the expectation.*

## RULE.

To the sum of the single lives, A, B and C, add thrice the value of the three joint lives, deducting therefrom twice the sum of the values of each pair of joint lives, viz. of A and B, A and C, and B and C, and the remainder will be the answer.

## QUESTION.

Suppose the three lives in possession are 20, 30 and 40, and interest 4 per cent. what is the value of the expectation ?

The value of a life, aged 20, by table 10, is 16,033

— 30, — is 14,781

— 40, — is 13,197

Thrice the value of three joint lives, by table 29, is 26,958

70,969

Value of two lives, aged 20 and 30, by table 13, is 11,873

— 20 and 40, — 15, is 10,924

— 30 and 40, — 13, is 10,490

$2 \times 33,287 = 66,574$

Value of £1 per annum . . . 4,395

## PROBLEM XVI.

*A, B and C have an annuity equally amongst them, which, upon the decease of any one, is to be equally enjoyed by the survivors during their joint lives, and then the last survivor is to have the whole during his life : to find the value of the right of any one, as A, in the said annuity.*

## RULE.

From the value of the life of A, take half the sum of the values of the joint lives, A and B, and the joint lives, A and C ; then to the remainder add one-third of the value of the three joint lives, and the sum will be the answer.

## QUESTION.

Three persons, A, B and C, aged 20, 30 and 40 respectively, have an annuity equally amongst them, which, upon the extinction of any one, is to be equally enjoyed by the survivors until the death of one of them, and then the last survivor is to have the whole during his life ; what is the value of A's right, reckoning interest 4 per cent. ?

The value of the life of A, by table 10, is 16,033 ; the value of the lives, A and B, by table 13, is 11,873 ; the value of the lives of A and C, by table 15, is 10,924 ; and half of the last two values is 11,398 ; then  $16,033 - 11,398 = 4,635$  ; the value of the three joint lives, A, B and C, by table 29, is 8,986, one-third of which is 2,995 ; and  $4,635 + 2,995 = 7,630$ , the value of an annuity of £1 as required.

*By the same rule, B's interest is found  $= 6,595$ , and C's  $= 5,485$  ; and  $7,630 + 6,595 + 5,485 = 19,710$ , the same as in table 30, for the value on the longest of three lives, aged 20, 30 and 40.*

## PROBLEM XVII.

*To find the value of an annuity granted upon three lives, but to continue only as long as any two of them are in being together.*

## RULE.

From the sum of the values of an annuity on each pair of joint lives, subtract twice the value of an annuity on the three joint lives, and the remainder multiplied by the annuity will be the value required.

## QUESTION.

An annuity of £100 is purchased upon three lives, aged 20, 30 and 40, but as soon as any two of the lives fail, the annuity is to cease; what is the value, interest reckoned at 4 per cent.?

The value of two lives, aged 20 and 30, by table 13, is 11,873

— 20 and 40, — 15, is 10,924

— 30 and 40, — 13, is 10,490

---

33,287

Value of an annuity on the three joint lives, by table

29, is 8,986, and twice this value is 17,972

---

15,315

Multiply by the annuity... 100

---

1531,500

*Answer* £1531. 10s.

## PROBLEM XVIII.

*To find the present value of an annuity, to be enjoyed by one life, for what may remain of it beyond another life, after a given term of years; that is, provided both lives continue from the present time to the end of a given term.*

## RULE.

From the value of a life greater by the given term than the life in expectation, subtract the value of the two joint lives greater by the given term of years; multiply the remainder by the value of £1, to be received at the end of the given term, and then multiply by the probability that the two given lives shall both continue the given term, and the product will be the answer.

## QUESTION.

What is the value of a reversionary annuity of £10 per annum, to be enjoyed by a life, aged 30, for what may happen to remain of it beyond another life, aged 40, after 11 years, provided both lives continue so long; interest reckoned 5 per cent.?

|                                                    |        |
|----------------------------------------------------|--------|
| The value of a life at 41, by table 10, is         | 11,695 |
| Ditto of two joint lives, aged 41 and 51, — 13, is | 8,025  |
|                                                    | <hr/>  |
|                                                    | 3,670  |

And 3,670 multiplied by ,584679 (the value of £1, due at the end of 11 years, by table 1,) is 2,14577.

The probability that a single life at 30 shall continue 11 years, is, by table 8,  $\frac{3559}{4385}$ ; the probability that a life at 40 shall continue 11 years, is  $\frac{2776}{3635}$ ; the probability that two such lives shall both continue 11 years, is  $\frac{3559}{4385} \times \frac{2776}{3635}$ , or ,6198.

And 2,14577 multiplied by ,6198, gives 1,32995: the annuity being £10, its present value is 13,2995.

## PROBLEM XIX.

*To find the value of an annuity, to be enjoyed for what may happen to remain of one life after another, provided the life in expectation continues a given time.*

## RULE.

Find, by problem 13, the present value of the annuity for the remainder of the life in expectation after the given time, and multiply this value by the probability that the other life shall fail within that time. Find also, by the last problem, the value of the reversion, provided both lives continue the given time. Add these values together, and the sum will be the answer in a single present payment.

## QUESTION.

What is the value of an annuity of £10 for the life of a person, now 30, to commence at the end of 11 years, if another person, now 40, should be then dead; or, if this should not happen, at the end of any year beyond 11 years in which the former shall happen to survive the latter; interest 5 per cent.?

A life at 41, by table 10, is 11,695; the present value of £1, to be received at the end of 11 years, by table 1, is ,584679, and the probability that a life at 30 will continue 11 years, is, according to table 8,  $\frac{3559}{4385}$ , or ,8116.

And  $11,695 \times ,584679 \times ,8116 = 5,549$ , which multiplied by 10 (the annuity), gives 55,49.

The probability that a person, 40 years of age, shall live 11 years, is  $\frac{2776}{3035}$ , or ,7636. The probability, therefore, that he will die in 11 years, is ,7636 subtracted from unity; the remainder is ,2364, which multiplied by 55,49, gives 13,1178.

The value of the reversion, provided both live 11 years, found by the last problem, is 13,2995, and this value added to the former, makes 26,4173, the value required.

## PROBLEM XX.

*To find the value of any temporary reversionary life annuity.*

## RULE.

From the value of an annuity for the given term on the life of the expectant, subtract the value of a similar annuity on the two joint lives, and the remainder will be the value required.

## QUESTION.

A lease of an estate is held for 20 years, to the rent of which a person, now aged 35, will be entitled on the decease of his brother, aged 45; what is the value of his interest therein, reckoning interest 5 per cent.?

The value of an annuity for 20 years, on a life, aged 35, is, by question 1, problem 12, 10,344; and the value of a similar annuity on the two joint lives, is, by question 2, equal to 8,266; consequently the difference of these two values, or 2,078, will be the answer required.

*To find the value of a temporary reversionary annuity in annual payments, divide the single payment by unity added to the value of a temporary annuity on the joint lives for one year less than the given term, and the quotient will be the annual payment required.*

## PROBLEM XXI.

*To find the present value of an annuity, certain for a given term,  
after the extinction of any given life or lives.*

### RULE.

Multiply the value of an annuity on the given life or lives by the rate of interest, and subtract the product from unity; multiply the remainder by the present value of an annuity certain for the given term, and the product will be the value required.

### QUESTIONS.

1. D and his heirs are entitled to an annuity certain for 21 years, to commence at the death of a person, aged 70; what is the present value of D's interest in that annuity, reckoning interest 5 per cent.?

The value on the life of a person, aged 70, by table 10, is 6,023, which multiplied by ,05 and subtracted from unity, will leave ,69885; and this multiplied by 12,8211 (or the value of an annuity certain for 21 years), will produce 8,960, the value required.

If this value be added to 6,023 (or the value of the annuity on the life in possession), the sum of them, or 19,983, will be the value of an annuity on the given life, commencing immediately, and to continue, after the extinction of such life, for the term of 21 years longer.

2. A lease of an estate is held upon two lives, aged 60 and 70, and, after the decease of both of them, then for 21 years longer; what is the value of such lease, reckoning interest 5 per cent.?

The value of an annuity on the longest of two lives, aged 60 and 70, is, by table 26, 9,735, which, being multiplied by ,05 and subtracted from unity, will leave ,51325; this being multiplied by 12,8211 (or the value of an annuity certain for 21 years) will give 6,580 for the present value of the same annuity, to be enjoyed 21 years after the extinction of the longest of the two lives. And this value being added to 9,735 (or the value of an annuity on the longest of the two lives) will give 16,315 for the value of the lease required.

## PROBLEM XXII.

*To find the present value of what may happen to remain (after any given life or lives) of an annuity certain for a given term, provided such term be less than that to which it is possible the given lives may extend.*

## RULE.

From the value of an annuity certain for the given term, subtract the value of a temporary annuity, on the given life or lives, for the given term: the difference will be the value required.

## QUESTION.

A lease of an estate is held for 20 years, to the rent of which a person, aged 35, is entitled, provided he lives so long; but if not, then the remainder of the lease will descend to his heirs; what is the value of their interest in the same, reckoning interest 5 per cent.?

The value of an annuity certain for 20 years, by table 2, is 12,462

The value of a temporary annuity for 20 years, on a life

aged 35, by problem 12, is 10,344

*Answer* £2. 2s. 4 $\frac{1}{4}$ d.

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2,118

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Had the life been 45 years of age, the value would have been equal to the difference between 12,462 and 9,727; that is, 2,735 would be the value of the reversion in this case.

Had these two joint lives (aged 35 and 45) been entitled to the rent of the estate, provided they lived so long, then 8,266 (or the value of a temporary annuity for 20 years on those two joint lives, as found by problem 12,) subtracted from 12,462, would give 4,196 for the value of their heirs' interest in the lease.

## PROBLEM XXIII.

*To find the value of an assurance of a given sum, which is to be received on the extinction of any given life or lives.*

## RULE.

Subtract the value of the life or lives from the perpetuity; multiply the remainder by the interest for a year, and this last product divided by £1, increased by its interest for a year, will give the answer in a single payment; and this answer divided by the value of the life or lives, will give the value in annual payments during the continuance of the life or lives.

## QUESTIONS.

1. What should a person, 30 years of age, give for £100, payable at his death to his heirs, interest reckoned at 4 per cent.?

|                                              |        |
|----------------------------------------------|--------|
| Interest being 4 per cent. the perpetuity is | 25,    |
| Value of the life, by table 10, is           | 14,781 |
|                                              | <hr/>  |
|                                              | 10,219 |
| Interest of £100 for a year, is              | 4      |
|                                              | <hr/>  |
|                                              | 40,876 |

And 40,876 divided by 1,04 (£1, increased by its interest for a year), gives 39,304, the value in a single present payment, as per table 36.

And this payment divided by 14,781, gives 2,658, the same value in annual payments during the continuance of the life.

\*\*\* *If the first payment is to be made immediately, the single payment must be divided by the value of the life with unity added.*

2. What is the present value of an assurance of £100, to be received on the death of either of two persons, aged 20 and 40, interest 5 per cent.?

|                                                |        |
|------------------------------------------------|--------|
| Interest being 5 per cent. the perpetuity is   | 20,    |
| Value of the two joint lives, per table 15, is | 9,937  |
|                                                | <hr/>  |
|                                                | 10,063 |
| Interest of £100 for a year, is                | 5      |
|                                                | <hr/>  |
|                                                | 50,315 |

And 50,315 divided by 1,05, gives 47,919, the value in a single present payment, as per table 37.

3. What sum ought to be given for the assurance of £100, to be received on the decease of the longest of two lives, aged 20 and 40, reckoning interest 4 per cent.?

Value of a life, aged 20, by table 10, is 16,033

— 40, — 13,197

---

29,230

Value of the joint continuance of these

two lives, by table 15, is 10,924

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Value of the longest of the two lives, as

per table 26, 18,306, which

subtracted from 25 (the perpetuity), leaves 6,694; and  $6,694 \times 4$  (interest for a year), gives 26,776, which being divided by 1,04 (or £1, increased by its interest for a year), gives £25,746, the value in a single present payment.

If the reversion is not a sum but an annuity for ever, or an estate in fee simple, to be entered upon after a given life, its present value, in a single payment, will be “the value of the life subtracted from the perpetuity, and the remainder multiplied by the annuity or the annual rent of the estate.”

## TABLE XXXVI.

Shewing the value of an assurance of £100 on a single life, at 3, 4 and 5 per cent.

| Age. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Age. | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|------|-------------------------|-------------------------|-------------------------|------|-------------------------|-------------------------|-------------------------|
| 8    | 36,257                  | 28,223                  | 22,733                  | 40   | 53,841                  | 45,396                  | 38,871                  |
| 9    | 36,469                  | 28,365                  | 22,810                  | 41   | 54,505                  | 46,085                  | 39,548                  |
| 10   | 36,913                  | 28,758                  | 23,148                  | 42   | 55,172                  | 46,777                  | 40,233                  |
| 11   | 37,437                  | 29,258                  | 23,605                  | 43   | 55,839                  | 47,473                  | 40,919                  |
| 12   | 38,010                  | 29,804                  | 24,110                  | 44   | 56,517                  | 48,185                  | 41,629                  |
| 13   | 38,599                  | 30,373                  | 24,638                  | 45   | 57,208                  | 48,911                  | 42,357                  |
| 14   | 39,207                  | 30,961                  | 25,190                  | 46   | 57,913                  | 49,658                  | 43,110                  |
| 15   | 39,834                  | 31,573                  | 25,771                  | 47   | 58,632                  | 50,423                  | 43,886                  |
| 16   | 40,481                  | 32,212                  | 26,381                  | 48   | 59,366                  | 51,211                  | 44,686                  |
| 17   | 41,113                  | 32,838                  | 26,981                  | 49   | 60,117                  | 51,923                  | 45,510                  |
| 18   | 41,710                  | 33,427                  | 27,538                  | 50   | 60,866                  | 52,831                  | 46,338                  |
| 19   | 42,272                  | 33,973                  | 28,057                  | 51   | 61,603                  | 53,627                  | 47,157                  |
| 20   | 42,802                  | 34,488                  | 28,538                  | 52   | 62,340                  | 54,427                  | 47,976                  |
| 21   | 43,291                  | 34,954                  | 28,967                  | 53   | 63,086                  | 55,242                  | 48,819                  |
| 22   | 43,754                  | 35,396                  | 29,367                  | 54   | 63,842                  | 56,073                  | 49,681                  |
| 23   | 44,229                  | 35,846                  | 29,781                  | 55   | 64,612                  | 56,919                  | 50,562                  |
| 24   | 44,710                  | 36,301                  | 30,200                  | 56   | 65,392                  | 57,781                  | 51,462                  |
| 25   | 45,202                  | 36,777                  | 30,633                  | 57   | 66,182                  | 58,658                  | 52,386                  |
| 26   | 45,703                  | 37,261                  | 31,081                  | 58   | 66,980                  | 59,554                  | 53,329                  |
| 27   | 46,213                  | 37,754                  | 31,538                  | 59   | 67,792                  | 60,461                  | 54,286                  |
| 28   | 46,732                  | 38,258                  | 32,010                  | 60   | 68,611                  | 61,388                  | 55,276                  |
| 29   | 47,261                  | 38,777                  | 32,490                  | 61   | 69,437                  | 62,327                  | 56,281                  |
| 30   | 47,800                  | 39,304                  | 32,990                  | 62   | 70,277                  | 63,281                  | 57,305                  |
| 31   | 48,353                  | 39,850                  | 33,500                  | 63   | 71,136                  | 64,265                  | 58,371                  |
| 32   | 48,913                  | 40,404                  | 34,029                  | 64   | 72,007                  | 65,269                  | 59,457                  |
| 33   | 49,486                  | 40,973                  | 34,571                  | 65   | 72,901                  | 66,304                  | 60,590                  |
| 34   | 50,072                  | 41,558                  | 35,129                  | 66   | 73,804                  | 67,354                  | 61,743                  |
| 35   | 50,666                  | 42,158                  | 35,705                  | 67   | 74,713                  | 68,419                  | 62,919                  |
| 36   | 51,275                  | 42,769                  | 36,300                  | 68   | 75,630                  | 69,500                  | 64,114                  |
| 37   | 51,898                  | 43,400                  | 36,910                  | 69   | 76,550                  | 70,588                  | 65,329                  |
| 38   | 52,530                  | 44,046                  | 37,543                  | 70   | 77,474                  | 71,688                  | 66,557                  |
| 39   | 53,180                  | 44,711                  | 38,195                  |      |                         |                         |                         |

*To find the value in annual payments, divide the value in the table by unity added to the value of an annuity on the given life.*

## EXAMPLES.

1. A person, aged 50 years, wants to insure to his family £100 at his death, but instead of making a present payment of 60,866, or £60. 17s. 4d. as per the preceding table, at 3 per cent. he wishes to make annual payments during his life ; what ought these annual payments to be?

Divide 60,866 by 13,436 (or unity added to the value of an annuity on a life, aged 50,) and the quotient will be 4,530, or £4. 10s. 7d. the answer.

2. A person, aged 20, is desirous of assuring his own life for £5000; what is the value, reckoning interest at 5 per cent.?

Opposite 20 and under 5 per cent. is 28,538 Value of £100.

Multiply by 50

|                           |          |
|---------------------------|----------|
| <i>Answer</i> £1426. 18s. | 1426,900 |
|---------------------------|----------|

And 1426,9 divided by 15,007 (or unity added to the value of an annuity on a life, aged 20,) gives 95,082 the value of the same in annual payments.

3. A person, aged 20, borrows £2000, by giving security to pay the value of the same at his death ; what is the sum which ought then to be paid, reckoning interest 4 per cent.?

Divide 2000 by ,34488 (the value of £1, per table,) and the quotient will be £5799,118, the answer required.

N. B. *The table at 3 per cent. is adopted by all the assurance offices in London.*

## TABLE XXXVII.

Shewing the value of an assurance of £100 on two joint lives, at 3, 4 and 5 per cent.

| Ages. |        | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. | Ages.  |        | Value at<br>3 per Cent. | Value at<br>4 per Cent. | Value at<br>5 per Cent. |
|-------|--------|-------------------------|-------------------------|-------------------------|--------|--------|-------------------------|-------------------------|-------------------------|
| 10    | 10     | 49,498                  | 41,242                  | 34,928                  | 25     | 60     | 72,343                  | 65,746                  | 60,081                  |
|       | 15     | 51,117                  | 42,919                  | 36,657                  |        | 65     | 75,621                  | 69,538                  | 64,214                  |
|       | 20     | 52,958                  | 44,788                  | 38,543                  | 30     | 30     | 60,418                  | 52,642                  | 46,405                  |
|       | 25     | 54,319                  | 46,162                  | 39,871                  |        | 35     | 61,754                  | 54,046                  | 47,838                  |
|       | 30     | 55,873                  | 47,746                  | 41,410                  |        | 40     | 63,392                  | 55,808                  | 49,638                  |
|       | 35     | 57,693                  | 49,623                  | 43,257                  |        | 45     | 65,271                  | 57,846                  | 51,738                  |
|       | 40     | 59,832                  | 51,873                  | 45,514                  |        | 50     | 67,495                  | 60,304                  | 54,305                  |
|       | 45     | 62,206                  | 54,419                  | 48,095                  |        | 55     | 69,915                  | 63,004                  | 57,147                  |
|       | 50     | 64,919                  | 57,365                  | 51,143                  |        | 60     | 72,685                  | 66,146                  | 60,514                  |
|       | 55     | 67,801                  | 60,554                  | 54,476                  |        | 65     | 75,866                  | 69,831                  | 64,538                  |
| 60    | 71,012 | 64,177                  | 58,333                  | 35                      | 35     | 62,944 | 55,338                  | 49,143                  |                         |
| 65    | 74,606 | 68,323                  | 62,843                  |                         | 40     | 64,428 | 56,938                  | 50,805                  |                         |
| 15    | 15     | 52,731                  | 44,573                  |                         | 38,286 | 45     | 66,149                  | 58,823                  | 52,757                  |
|       | 20     | 54,388                  | 46,304                  |                         | 40,071 | 50     | 68,217                  | 61,115                  | 55,167                  |
|       | 25     | 55,641                  | 47,577                  | 41,314                  | 55     | 70,492 | 63,661                  | 57,862                  |                         |
|       | 30     | 57,083                  | 49,054                  | 42,757                  | 60     | 73,128 | 66,658                  | 61,076                  |                         |
|       | 35     | 58,783                  | 50,819                  | 44,500                  | 65     | 76,181 | 70,204                  | 64,952                  |                         |
|       | 40     | 60,799                  | 52,946                  | 46,643                  | 40     | 40     | 65,736                  | 58,385                  | 52,305                  |
|       | 45     | 63,047                  | 55,358                  | 49,095                  |        | 45     | 67,274                  | 60,073                  | 54,081                  |
|       | 50     | 65,634                  | 58,185                  | 52,019                  |        | 50     | 69,154                  | 62,177                  | 56,300                  |
|       | 55     | 68,395                  | 61,242                  | 55,224                  |        | 55     | 71,250                  | 64,535                  | 58,805                  |
|       | 60     | 71,485                  | 64,731                  | 58,943                  |        | 60     | 73,713                  | 67,346                  | 61,833                  |
| 65    | 74,960 | 68,742                  | 63,310                  | 65                      | 76,612 | 70,715 | 65,524                  |                         |                         |
| 20    | 20     | 55,923                  | 47,942                  | 41,752                  | 45     | 45     | 68,611                  | 61,577                  | 55,657                  |
|       | 25     | 57,065                  | 49,119                  | 42,910                  |        | 50     | 70,278                  | 63,450                  | 57,662                  |
|       | 30     | 58,390                  | 50,488                  | 44,252                  |        | 55     | 72,164                  | 65,585                  | 59,948                  |
|       | 35     | 59,968                  | 52,135                  | 45,890                  |        | 60     | 74,424                  | 68,177                  | 62,752                  |
|       | 40     | 61,856                  | 54,138                  | 47,919                  |        | 65     | 77,134                  | 71,335                  | 66,219                  |
|       | 45     | 63,979                  | 56,423                  | 50,248                  | 50     | 50     | 71,705                  | 65,073                  | 59,419                  |
|       | 50     | 66,438                  | 59,115                  | 53,043                  |        | 55     | 73,344                  | 66,950                  | 61,438                  |
|       | 55     | 69,077                  | 62,042                  | 56,114                  |        | 60     | 75,357                  | 69,273                  | 63,962                  |
|       | 60     | 72,049                  | 65,404                  | 59,700                  |        | 65     | 77,831                  | 72,169                  | 67,157                  |
|       | 65     | 75,406                  | 69,285                  | 63,924                  | 55     | 55     | 74,713                  | 68,542                  | 63,167                  |
| 25    | 25     | 58,106                  | 50,215                  | 43,981                  |        | 60     | 76,443                  | 70,542                  | 65,371                  |
|       | 30     | 59,322                  | 51,469                  | 45,213                  |        | 65     | 78,637                  | 73,131                  | 68,233                  |
|       | 35     | 60,786                  | 53,012                  | 46,786                  | 60     | 60     | 77,846                  | 72,208                  | 67,200                  |
|       | 40     | 62,559                  | 54,904                  | 48,709                  |        | 65     | 79,699                  | 74,385                  | 69,657                  |
|       | 45     | 64,571                  | 57,077                  | 50,933                  |        | 65     | 81,152                  | 76,150                  | 71,619                  |
|       | 50     | 66,923                  | 59,661                  | 53,623                  |        |        |                         |                         |                         |
|       | 55     | 69,461                  | 62,485                  | 56,590                  |        |        |                         |                         |                         |

## EXAMPLES.

1. Two persons, aged 40 and 50, want to have a security for £1000, to be received on the death of either of them; what ought they to pay for the same, reckoning interest 5 per cent.?

Opposite 40 and 50, and under 5 per cent. is 56,300 Value of £100.

Multiply by 10

*Answer* £563.

563,0

And 563,0 divided by 9,177 (or unity added to the value of an annuity on the two joint lives, by table 13,) gives 61,349, or £61. 6s. 10½d. the value of the same in annual payments.

2. Let the interest be 3 per cent. and the rest as the last example.

Opposite 40 and 50, and under 3 per cent. is 69,154, which multiplied by 10 gives 691,54, the value in a present payment.

And 691,54 divided by 10,59 (or unity added to the value of an annuity on the two joint lives), gives 65,301, or £65. 6s. 2¼d. the value of the same in annual payments.

*N. B. The table at 3 per cent. is adopted by all the assurance offices in London.*

## PROBLEM XXIV.

*To find the value of an assurance of a given sum, to be received on the decease of A, provided he dies before another life, B.*

## RULE.

Find the value of an annuity on two equal joint lives, whereof the common age is equal to the age of the older of the two proposed lives; which value subtract from the perpetuity, and take half the remainder.

Then say, as the expectation of the duration of the younger of the two lives is to that of the elder, so is the said half remainder to a fourth proportional, which will be the number of years purchase to be given for the estate when the life in expectation is the oldest of the two. But if this life is the youngest, then add the number of years purchase, just found, to the value of the joint lives, and let the sum be subtracted from the perpetuity, and the remainder will be the answer.

## QUESTIONS.

1. B, aged 60, will, if he lives till the decease of A, aged 25, be entitled to a legacy of £100; what is the value of his interest in such sum, reckoning interest 3 per cent.?

By table 11, the value of two equal joint lives of 60, is 6,606, which subtract from 33,333 (the perpetuity); the remainder will be 26,727, whereof the half is 13,3635.

Then as 30,85 (see table 9) : 1321 :: 13,3635 : 5,72226, the number of years purchase that ought to be given for an estate, worth £100, on such a contingency. And 5,72226 divided by 1,03 (or £1, increased by its interest for a year), will give 5,5555 years purchase; therefore  $5,5555 \times 3 = 16,667$ , as per table 38. And 16,667 divided by 9,495 (the value, per table 18, of the two joint lives increased by unity), gives 1,755, the value in annual payments.

2. Let the age of the expectant be 25, of the possessor 60, and the rest as in the last question.

The value of the joint lives, 25 and 60, by table 18, is 8,495, which added to 5,722, found above, the sum will be 14,217, which subtract from the perpetuity, and divide the difference by 1,03: the quotient will be 18,559 years purchase.

Then  $18,559 \times 3 = 55,677$ , the answer, as per table 38. And 55,677 divided by 9,495, gives 5,863, the value in annual payments.

## TABLE XXXVIII.

Shewing the value of £100, depending on the contingency of one life surviving another, reckoning interest at 3 per cent.

| Age of the Possessor. | Age of the Expectant. | Single Premium. | Annual Premium. | Age of the Possessor. | Age of the Expectant. | Single Premium. | Annual Premium. | Age of the Possessor. | Age of the Expectant. | Single Premium. | Annual Premium. |
|-----------------------|-----------------------|-----------------|-----------------|-----------------------|-----------------------|-----------------|-----------------|-----------------------|-----------------------|-----------------|-----------------|
| 10                    | 10                    | 24,749          | 1,427           | 25                    | 10                    | 31,789          | 2,027           | 40                    | 10                    | 40,763          | 2,956           |
|                       | 15                    | 24,198          | 1,444           |                       | 15                    | 31,093          | 2,042           |                       | 15                    | 40,023          | 2,974           |
|                       | 20                    | 23,498          | 1,455           |                       | 20                    | 30,254          | 2,052           |                       | 20                    | 39,164          | 2,991           |
|                       | 25                    | 22,531          | 1,437           |                       | 25                    | 29,053          | 2,020           |                       | 25                    | 37,969          | 2,954           |
|                       | 30                    | 21,468          | 1,417           |                       | 30                    | 27,683          | 1,982           |                       | 30                    | 36,560          | 2,909           |
|                       | 35                    | 20,317          | 1,399           |                       | 35                    | 26,198          | 1,946           |                       | 35                    | 34,888          | 2,857           |
|                       | 40                    | 19,070          | 1,383           |                       | 40                    | 24,590          | 1,913           |                       | 40                    | 32,868          | 2,794           |
|                       | 45                    | 17,696          | 1,364           |                       | 45                    | 22,819          | 1,876           |                       | 45                    | 30,501          | 2,715           |
|                       | 50                    | 16,214          | 1,346           |                       | 50                    | 20,907          | 1,841           |                       | 50                    | 27,946          | 2,639           |
|                       | 55                    | 14,631          | 1,324           |                       | 55                    | 18,866          | 1,799           |                       | 55                    | 25,218          | 2,555           |
| 15                    | 60                    | 12,925          | 1,299           | 30                    | 60                    | 16,667          | 1,755           | 45                    | 60                    | 22,278          | 2,468           |
|                       | 65                    | 11,098          | 1,273           |                       | 65                    | 14,310          | 1,710           |                       | 65                    | 19,128          | 2,382           |
|                       | 70                    | 9,153           | 1,246           |                       | 70                    | 11,803          | 1,662           |                       | 70                    | 15,776          | 2,296           |
|                       | 10                    | 26,979          | 1,609           |                       | 10                    | 34,404          | 2,271           |                       | 10                    | 44,511          | 3,430           |
|                       | 15                    | 26,365          | 1,625           |                       | 15                    | 33,694          | 2,287           |                       | 15                    | 43,766          | 3,450           |
|                       | 20                    | 25,602          | 1,635           |                       | 20                    | 32,843          | 2,299           |                       | 20                    | 42,921          | 3,471           |
|                       | 25                    | 24,549          | 1,612           |                       | 25                    | 31,640          | 2,266           |                       | 25                    | 41,753          | 3,433           |
|                       | 30                    | 23,391          | 1,588           |                       | 30                    | 30,209          | 2,223           |                       | 30                    | 40,369          | 3,386           |
|                       | 35                    | 22,136          | 1,564           |                       | 35                    | 28,589          | 2,177           |                       | 35                    | 38,735          | 3,333           |
|                       | 40                    | 20,778          | 1,544           |                       | 40                    | 26,834          | 2,135           |                       | 40                    | 36,775          | 3,273           |
| 20                    | 45                    | 19,281          | 1,520           | 35                    | 45                    | 24,901          | 2,088           | 50                    | 45                    | 34,306          | 3,183           |
|                       | 50                    | 17,666          | 1,497           |                       | 50                    | 22,813          | 2,044           |                       | 50                    | 31,432          | 3,080           |
|                       | 55                    | 15,941          | 1,469           |                       | 55                    | 20,588          | 1,993           |                       | 55                    | 28,364          | 2,968           |
|                       | 60                    | 14,083          | 1,439           |                       | 60                    | 18,188          | 1,939           |                       | 60                    | 25,057          | 2,854           |
|                       | 65                    | 12,092          | 1,407           |                       | 65                    | 15,616          | 1,885           |                       | 65                    | 21,514          | 2,740           |
|                       | 70                    | 9,973           | 1,373           |                       | 70                    | 12,880          | 1,829           |                       | 70                    | 17,744          | 2,629           |
|                       | 10                    | 29,461          | 1,824           |                       | 10                    | 37,375          | 2,573           |                       | 10                    | 48,705          | 4,044           |
|                       | 15                    | 28,786          | 1,838           |                       | 15                    | 36,647          | 2,590           |                       | 15                    | 47,968          | 4,066           |
|                       | 20                    | 27,961          | 1,848           |                       | 20                    | 35,794          | 2,604           |                       | 20                    | 47,144          | 4,091           |
|                       | 25                    | 26,811          | 1,819           |                       | 25                    | 34,588          | 2,569           |                       | 25                    | 46,017          | 4,052           |
|                       | 30                    | 25,546          | 1,788           |                       | 30                    | 33,166          | 2,526           |                       | 30                    | 44,680          | 4,004           |
| 25                    | 35                    | 24,176          | 1,759           | 40                    | 35                    | 31,472          | 2,474           | 55                    | 35                    | 43,101          | 3,950           |
|                       | 40                    | 22,692          | 1,733           |                       | 40                    | 29,540          | 2,419           |                       | 40                    | 41,208          | 3,891           |
|                       | 45                    | 21,058          | 1,703           |                       | 45                    | 27,413          | 2,359           |                       | 45                    | 38,846          | 3,807           |
|                       | 50                    | 19,294          | 1,674           |                       | 50                    | 25,116          | 2,302           |                       | 50                    | 35,853          | 3,691           |
|                       | 55                    | 17,410          | 1,640           |                       | 55                    | 22,664          | 2,237           |                       | 55                    | 32,353          | 3,535           |
|                       | 60                    | 15,381          | 1,603           |                       | 60                    | 20,022          | 2,170           |                       | 60                    | 28,581          | 3,378           |
|                       | 65                    | 13,206          | 1,564           |                       | 65                    | 17,191          | 2,102           |                       | 65                    | 24,540          | 3,224           |
|                       | 70                    | 10,892          | 1,523           |                       | 70                    | 14,179          | 2,034           |                       | 70                    | 20,239          | 3,075           |

| Age of the Possessor. | Age of the Expectant | Single Premium. | Annual Premium. | Age of the Possessor. | Age of the Expectant | Single Premium. | Annual Premium. | Age of the Possessor. | Age of the Expectant | Single Premium. | Annual Premium. |
|-----------------------|----------------------|-----------------|-----------------|-----------------------|----------------------|-----------------|-----------------|-----------------------|----------------------|-----------------|-----------------|
| 55                    | 10                   | 53,170          | 4,810           | 60                    | 10                   | 58,087          | 5,836           | 65                    | 10                   | 63,510          | 7,285           |
|                       | 15                   | 52,454          | 4,824           |                       | 15                   | 57,403          | 5,863           |                       | 15                   | 62,870          | 7,313           |
|                       | 20                   | 51,668          | 4,867           |                       | 20                   | 56,669          | 5,905           |                       | 20                   | 62,203          | 7,367           |
|                       | 25                   | 50,596          | 4,826           |                       | 25                   | 55,677          | 5,863           |                       | 25                   | 61,311          | 7,325           |
|                       | 30                   | 49,329          | 4,776           |                       | 30                   | 54,499          | 5,811           |                       | 30                   | 60,251          | 7,271           |
|                       | 35                   | 47,829          | 4,721           |                       | 35                   | 53,103          | 5,755           |                       | 35                   | 58,990          | 7,213           |
|                       | 40                   | 46,034          | 4,664           |                       | 40                   | 51,437          | 5,699           |                       | 40                   | 57,484          | 7,159           |
|                       | 45                   | 43,800          | 4,583           |                       | 45                   | 49,367          | 5,622           |                       | 45                   | 55,620          | 7,085           |
|                       | 50                   | 40,993          | 4,479           |                       | 50                   | 46,777          | 5,529           |                       | 50                   | 53,293          | 7,002           |
|                       | 55                   | 37,357          | 4,303           |                       | 55                   | 43,439          | 5,371           |                       | 55                   | 50,302          | 6,858           |
|                       | 60                   | 33,002          | 4,080           |                       | 60                   | 38,923          | 5,117           |                       | 60                   | 46,279          | 6,640           |
|                       | 65                   | 28,336          | 3,863           |                       | 65                   | 33,419          | 4,795           |                       | 65                   | 40,576          | 6,270           |
|                       | 70                   | 23,370          | 3,656           |                       | 70                   | 27,563          | 4,490           |                       | 70                   | 33,466          | 5,787           |

## EXAMPLE.

B, aged 30, will, if he lives till the decease of a person, aged 65, be entitled to a legacy of £1000; what premium ought he to pay for having the same assured to his family in case of his death before the latter, reckoning interest 3 per cent.?

Opposite 30 and 65 is 15,616, the premium for £100, and  $15,616 \times 10 = 156,16$ , or £156. 3s. 2d. the answer in a single payment as required, or £18. 17s. annually.

N. B. The above table is adopted by all the assurance offices in London; the rule for calculating the values was given by Mr. Simpson, but it is found very incorrect when there is any considerable difference between the ages of the two lives: the true value may be found by the following

## RULE.

Let O represent a life one year older than A; and Y a life one year younger than A. Add unity to the value of an annuity on the two joint

lives O B, and multiply the sum by the number of persons represented as living, in table S, at the age of O ; then divide this product by the amount of £1 in a year, and reserve the quotient. Multiply the value of an annuity on the two joint lives, Y B, by the number of persons living at the age of Y ; and, having subtracted the product from the reserved quotient, divide the remainder by the number of persons living at the age of A ; subtract this last quotient from the present value of £1, payable on the extinction of the two joint lives A B ; and the remainder multiplied by half the given sum, will be the value required.

### EXAMPLE.

B, aged 60, will, if he lives till the decease of A, aged 25, be entitled to a legacy of £100 ; what is the value of his interest in such sum, reckoning interest 3 per cent. ?

The value of an annuity on two joint lives, O B, aged 26 and 60, is, by the rule in page 66, equal to 8,472 ; which being added to unity and multiplied by 4685 (or the number of persons living at the age of 26, as in table S,) will give 44376,32 ; and this divided by 1,03, will give 43083,805 for the quotient to be reserved.

The value of an annuity on the two joint lives, Y B, aged 24 and 60, is equal to 8,515, which being multiplied by 4835 (or the number of persons living against the age of 24), will produce 41170,025 ; this being subtracted from the reserved quotient, and the remainder divided by 4760 (or the number of persons living against the age of 25), will give ,40205. Now, the present value of £1, payable on the extinction of two joint lives, aged 25 and 60, is equal to ,72343 ; therefore ,40205 being subtracted from this value, will leave ,32138 ; and ,32138 multiplied by 50 (half the given sum), will produce 16,069, or £16. 1s. 4½d. the value required.

## PROBLEM XXV.

*To find the sum that ought to be given to a person, who is assured for the whole term of his life, for a given sum, in order that he may renounce his claim thereto.*

## RULE.

Subtract the equal annual payment, which he has been giving since the assurance commenced, from the equal annual payment which ought to be given for the assurance of the given sum on the life at its present age ; multiply the remainder by the value of an annuity (increased by unity\*) on the life at its present age ; the product will be the sum required.

## QUESTION.

A person, now aged 50, has been paying 2,179, or £2. 3s. 7d. annually, since he was 20 years of age, for the assurance of £100 at his death ; is desirous of discontinuing the same ; what sum ought to be given to him, by the office, as a compensation for so doing, interest reckoned at 3 per cent. ?

The annual premium which ought to be given for the assurance of £100, on a life, aged 50, is, by example 1, under table 36, equal to £4,530 ; and the difference between this and 2,179 is 2,351, which multiplied by 13,436 (or unity added to the value of an annuity on a life, aged 50,) will produce 31,588, or £31. 11s. 9d. the answer.

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\* This supposes that the policy is cancelled immediately before the annual payment becomes due ; but if immediately after, we must multiply the remainder, above alluded to, by the value of an annuity on the given life, without the addition of unity.

## PROBLEM XXVI.

*To find what sum ought to be given for renewing any number of years lapsed, or expired, in a lease granted for any number of years.*

## RULE.

From the value of the whole term, in table 2, subtract the value, in the same table, of the unexpired part of the term.

## QUESTIONS.

1. What sum ought to be given by a tenant for the renewal of six years lapsed in his lease for 10 years, interest 5 per cent.?

Opposite 10, in table 2, under 5 per cent. is 7,7212

And opposite 4 (the unexpired part) is 3,5459

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4,1753

*Answer*  $4\frac{1}{2}$  years purchase.

2. How much money ought to be given for the renewal of 13 years lapsed in a lease for 21 years, reckoning interest 5 per cent.?

Opposite 21, in table 2, under 5 per cent. is 12,821

And opposite 8 (the unexpired part) is 6,463

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*Answer* 6,358, or

$6\frac{1}{3}$  years purchase, as in the following table.

## TABLE XXXIX.

Shewing the fines due on the renewal of a lease, originally granted for 21 years.

| Years. | Years purchase at<br>4 per Cent. | Years purchase at<br>5 per Cent. | Years purchase at<br>6 per Cent. | Years. | Years purchase at<br>4 per Cent. | Years purchase at<br>5 per Cent. | Years purchase at<br>6 per Cent. |
|--------|----------------------------------|----------------------------------|----------------------------------|--------|----------------------------------|----------------------------------|----------------------------------|
| 1      | ,439                             | ,359                             | ,294                             | 12     | 6,594                            | 5,713                            | 4,962                            |
| 2      | ,895                             | ,736                             | ,606                             | 13     | 7,296                            | 6,358                            | 5,554                            |
| 3      | 1,370                            | 1,132                            | ,936                             | 14     | 8,027                            | 7,035                            | 6,182                            |
| 4      | 1,863                            | 1,547                            | 1,287                            | 15     | 8,787                            | 7,745                            | 6,847                            |
| 5      | 2,377                            | 1,983                            | 1,658                            | 16     | 9,577                            | 8,492                            | 7,552                            |
| 6      | 2,911                            | 2,441                            | 2,052                            | 17     | 10,399                           | 9,275                            | 8,299                            |
| 7      | 3,466                            | 2,922                            | 2,469                            | 18     | 11,254                           | 10,098                           | 9,091                            |
| 8      | 4,043                            | 3,428                            | 2,911                            | 19     | 12,143                           | 10,962                           | 9,931                            |
| 9      | 4,644                            | 3,958                            | 3,380                            | 20     | 13,068                           | 11,869                           | 10,821                           |
| 10     | 5,269                            | 4,515                            | 3,877                            | 21     | 14,029                           | 12,821                           | 11,764                           |
| 11     | 5,918                            | 5,099                            | 4,404                            |        |                                  |                                  |                                  |

## EXAMPLE.

The sum or fine, which a tenant ought to give for the renewal of five years lapsed in his lease of 21, reckoning interest 5 per cent. is 1,983, or two year's purchase nearly.

Suppose, then, the rent to be £100, the fine will be £198. 6s.

*N. B* The application of the last rule to practice, being so very easy, it is quite needless to insert any more tables for the renewal of leases.

## PROBLEM XXVII.

*To find what sum ought to be given for renewing, with one life, the lease of an estate originally held on three lives.*

### RULE.

From the value of an annuity on the longest of all the lives (including the life to be added), subtract the value of an annuity on the longest of the lives in possession, and the remainder will be the answer.

### QUESTION.

Suppose the two lives in possession of a leasehold estate to be 60 and 70, and the life to be added 10, what sum or fine ought to be paid for renewing the lease, interest reckoned 5 per cent. ?

The value of the longest of three lives, aged 10,

60 and 70, by table 30, is 15,896

The value of the longest of two lives, aged 60 and

70, by table 26, is 9,735

Answer, as per the following table.. 6,161

## TABLE XL.

Shewing the fines due for renewing, with one life, the lease of an estate originally held on three lives.

| Life put in. | Ages of Lives in Possession. | Value at 3 p.Cent. | Value at 4 p.Cent. | Value at 5 p.Cent. | Life put in. | Ages of Lives in Possession. | Value at 3 p.Cent. | Value at 4 p.Cent. | Value at 5 p.Cent. |
|--------------|------------------------------|--------------------|--------------------|--------------------|--------------|------------------------------|--------------------|--------------------|--------------------|
| 10           | 30—30                        | 3,530              | 2,386              | 1,741              | 10           | 40—40                        | 4,814              | 3,277              | 2,397              |
| 10           | 30—40                        | 4,084              | 2,786              | 2,035              | 10           | 40—50                        | 5,443              | 3,937              | 2,916              |
| 10           | 30—50                        | 4,582              | 3,297              | 2,431              | 10           | 40—60                        | 6,278              | 4,605              | 3,451              |
| 10           | 30—60                        | 5,229              | 3,809              | 2,838              | 10           | 40—70                        | 6,952              | 5,159              | 3,914              |
| 10           | 30—70                        | 5,859              | 4,333              | 3,277              | 10           | 40—75                        | 7,290              | 5,545              | 4,264              |
| 10           | 30—75                        | 5,931              | 4,472              | 3,402              |              |                              |                    |                    |                    |

| Life put in. | Ages of Lives in Possession. | Value at 3 per Cent. | Value at 4 p. Cent. | Value at 5 p. Cent. | Life put in. | Ages of Lives in Possession. | Value at 3 per Cent. | Value at 4 p. Cent. | Value at 5 p. Cent. |
|--------------|------------------------------|----------------------|---------------------|---------------------|--------------|------------------------------|----------------------|---------------------|---------------------|
| 10           | 50—50                        | 6,489                | 4,755               | 3,563               | 15           | 60—60                        | 8,291                | 6,334               | 4,692               |
| 10           | 50—60                        | 7,490                | 5,555               | 4,206               | 15           | 60—70                        | 9,464                | 7,333               | 5,780               |
| 10           | 50—70                        | 8,440                | 6,345               | 4,873               | 15           | 60—75                        | 9,798                | 7,624               | 6,034               |
| 10           | 50—75                        | 8,789                | 6,681               | 5,174               | 15           | 70—70                        | 11,239               | 8,874               | 7,125               |
| 10           | 60—60                        | 9,056                | 6,853               | 5,023               | 20           | 30—30                        | 2,725                | 1,867               | 1,404               |
| 10           | 60—70                        | 10,276               | 7,876               | 6,161               | 20           | 30—40                        | 3,214                | 2,222               | 1,673               |
| 10           | 60—75                        | 10,617               | 8,206               | 6,452               | 20           | 30—50                        | 3,597                | 2,666               | 2,019               |
| 10           | 70—70                        | 12,101               | 9,475               | 7,556               | 20           | 30—60                        | 4,149                | 3,101               | 2,363               |
| 15           | 30—30                        | 3,124                | 2,121               | 1,572               | 20           | 30—70                        | 4,777                | 3,632               | 2,813               |
| 15           | 30—40                        | 3,651                | 2,506               | 1,857               | 20           | 30—75                        | 4,830                | 3,673               | 2,845               |
| 15           | 30—50                        | 4,085                | 2,984               | 1,927               | 20           | 40—40                        | 3,830                | 2,685               | 2,027               |
| 15           | 30—60                        | 4,680                | 3,452               | 2,600               | 20           | 40—50                        | 4,359                | 3,246               | 2,467               |
| 15           | 30—70                        | 5,314                | 3,987               | 3,052               | 20           | 40—60                        | 5,097                | 3,836               | 2,943               |
| 15           | 30—75                        | 5,374                | 4,073               | 3,127               | 20           | 40—70                        | 5,699                | 4,336               | 3,358               |
| 15           | 40—40                        | 4,328                | 2,992               | 2,224               | 20           | 40—75                        | 6,020                | 4,622               | 3,615               |
| 15           | 40—50                        | 4,905                | 3,601               | 2,701               | 20           | 50—50                        | 5,238                | 3,933               | 3,010               |
| 15           | 40—60                        | 5,689                | 4,227               | 3,205               | 20           | 50—60                        | 6,158                | 4,672               | 3,607               |
| 15           | 40—70                        | 6,319                | 4,750               | 3,641               | 20           | 50—70                        | 7,006                | 5,385               | 4,208               |
| 15           | 40—75                        | 6,649                | 5,085               | 3,943               | 20           | 50—75                        | 7,343                | 5,684               | 4,474               |
| 15           | 50—50                        | 5,859                | 4,347               | 3,289               | 20           | 60—60                        | 7,543                | 5,819               | 4,347               |
| 15           | 50—60                        | 6,821                | 5,117               | 3,910               | 20           | 60—70                        | 8,673                | 6,781               | 5,386               |
| 15           | 50—70                        | 7,714                | 5,869               | 4,546               | 20           | 60—75                        | 9,001                | 7,068               | 5,636               |
| 15           | 50—75                        | 8,057                | 6,173               | 4,816               | 20           | 70—70                        | 10,399               | 8,281               | 6,695               |

## EXAMPLE.

Two persons, aged 50 and 60, are in possession of a leasehold estate, originally held on three lives at £100 per annum; what sum ought to be given for renewing the lease with a life aged 15, interest reckoned at 5 per cent.?

Opposite 15, 50 and 60, and under 5 per cent. is 3,910

Multiply by the rent. . . 100

Answer £391. 391,000

## PROBLEM XXVIII.

*To find the value of the next presentation to a living.*

## RULE.

From the value of the successor's life, subtract the joint value of his and the incumbent's life, and the remainder will be the year's purchase, which, multiplied into the annuity, gives the answer.

## QUESTION.

A enjoys a living of £300 a year, and B would purchase it for his life after A's death; what should he pay for it, reckoning interest at 5 per cent. A being 60 and B 25 years of age?

B's life, by table 10, is 13,567

Value of their joint lives, by table 18, is 7,383

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6,184

300

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1855,200

*Answer* £1855. 4s.

## PROBLEM XXIX.

*To find the value of a perpetual advowson, or living, after the next presentation, or after the death of the incumbent and his successor.*

## RULE.

From the perpetuity subtract the value of the longest of the two lives, viz. the incumbent's and that of the person entitled to the next presentation, and the remainder will be the value of the advowson.

## QUESTION.

B, aged 50, enjoys a living belonging to A, of £100 per annum, and C, aged 30, is entitled to the next presentation; what is the value of the advowson, with both B and C's lives on it, interest reckoned 5 per cent.?

|                                 |        |
|---------------------------------|--------|
| B's life, by table 10, is       | 10,269 |
| C's        —        —        is | 13,072 |

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23,341

Value of their joint lives, by table 15, is    8,596

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14,745    Value of the

longest of the two lives, which, subtracted from 20 (the perpetuity), leaves 5,255, the value of £1 annuity; and  $5,255 \times 100$ , gives £525. 10s. the answer.

TABLE XLI.

Shewing the present value of the perpetuity of one year's rent or fine, payable for renewing estates, at the respective intervals of 2, 3, 4, 5, 6, 7, 10, 14, 20, 21 and 40 years.

| Interval of Years. | Value at 3 per Cent. | Value at 4 per Cent. | Value at 5 per Cent. | Value at 6 per Cent. | Value at 8 per Cent. |
|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 2                  | 16,420               | 12,255               | 9,756                | 8,091                | 6,010                |
| 3                  | 10,784               | 8,009                | 6,344                | 5,235                | 3,850                |
| 4                  | 7,968                | 5,887                | 4,640                | 3,810                | 2,774                |
| 5                  | 6,278                | 4,616                | 3,619                | 2,957                | 2,131                |
| 6                  | 5,153                | 3,769                | 2,940                | 2,389                | 1,704                |
| 7                  | 4,350                | 3,165                | 2,456                | 1,986                | 1,401                |
| 10                 | 2,908                | 2,082                | 1,590                | 1,264                | ,863                 |
| 14                 | 1,951                | 1,367                | 1,020                | ,793                 | ,516                 |
| 20                 | 1,240                | ,839                 | ,605                 | ,453                 | ,273                 |
| 21                 | 1,162                | ,782                 | ,560                 | ,417                 | ,248                 |
| 40                 | ,442                 | ,263                 | ,166                 | ,108                 | ,048                 |

## EXAMPLES.

1. What is the present value of the perpetuity of one year's rent or fine, payable every seven years, for renewing an estate; the rent being £100 per annum and interest 5 per cent.?

Opposite 7 years and under 5 per cent. is 2,456

Multiply by the rent.. 100

*Answer* £245. 12s.

245,600

Copyhold estates of inheritance subject to the payment of a fine on death or alienation, are considered of the nature of and equivalent in value to an estate subject to a renewing fine certain every seven years, and are valued accordingly.

2. Suppose the rent of an estate £100 per annum, and the fine on death or alienation is one year's rent, the present value of such perpetuity or enfranchisement at 5 per cent. is £245. 12s. as per the last example.

TABLE XLII.

Shewing the number of years possession that will reimburse a purchaser.

| Years<br>Purchase | 3 per Cent.  | 3½ per Cent. | 4 per Cent.  | 4½ per Cent. | 5 per Cent.  |
|-------------------|--------------|--------------|--------------|--------------|--------------|
|                   | Years. Days. | Years. Days. | Years. Days. | Years. Days. | Years. Days. |
| 5                 | 5—182        | 5—216        | 5—252        | 5—289        | 5—327        |
| 5½                | 6— 37        | 6— 79        | 6—122        | 6—168        | 6—216        |
| 6                 | 6—261        | 6—311        | 6—364        | 7— 55        | 7—113        |
| 6½                | 7—124        | 7—184        | 7—247        | 7—374        | 8— 20        |
| 7                 | 7—356        | 8— 62        | 8—137        | 8—217        | 8—303        |
| 7½                | 8—227        | 8—311        | 9— 34        | 9—129        | 9—231        |
| 8                 | 9—104        | 9—200        | 9—304        | 10— 51       | 10—172       |
| 8½                | 9—350        | 10— 97       | 10—217       | 10—348       | 11—125       |
| 9                 | 10—236       | 11— —        | 11—138       | 11—290       | 12— 92       |
| 9½                | 11—128       | 11—274       | 12— 69       | 12—245       | 13— 75       |
| 10                | 12— 24       | 12—191       | 13— 9        | 13—212       | 14— 75       |
| 10½               | 12—292       | 13—115       | 13—324       | 14—194       | 15— 94       |
| 11                | 13—200       | 14— 48       | 14—286       | 15—190       | 16—134       |
| 11½               | 14—115       | 14—354       | 15—259       | 16—203       | 17—196       |
| 12                | 15— 36       | 15—305       | 16—246       | 17—234       | 18—285       |
| 12½               | 15—329       | 16—265       | 17—246       | 18—285       | 20— 38       |
| 13                | 16—264       | 17—235       | 18—261       | 19—358       | 21—189       |
| 13½               | 17—206       | 18—216       | 19—292       | 21— 90       | 23— 13       |
| 14                | 18—156       | 19—209       | 20—340       | 22—215       | 24—247       |
| 14½               | 19—115       | 20—245       | 22— 43       | 24— 5        | 26—168       |
| 15                | 20— 82       | 21—234       | 23—132       | 25—195       | 28—151       |
| 15½               | 21— 59       | 22—267       | 24—245       | 27— 60       | 30—209       |
| 16                | 22— 45       | 23—316       | 26— 18       | 28—336       | 32—360       |
| 16½               | 23— 41       | 25— 16       | 27—185       | 30—300       | 35—264       |

## EXAMPLE.

Ten years purchase was given for an annuity ; how long must it be retained to reimburse the purchaser, interest 5 per cent. ?

In a line with 10 and under 5, we have 14 years 75 days for answer

## THEOREMS

*For finding, in all cases, the differences between the values of annuities payable yearly, and the same annuities payable half yearly and quarterly, by Dr. Price.*

The values of annuities, as given in all the common tables, suppose them paid yearly. But it is well known, that generally they are paid half yearly, and sometimes quarterly; and that this is a circumstance which always adds to their value.

Annuities are either payable certainly or conditionally. Of the former sort are all annuities which are payable at fixed times, without depending on any contingency. Of the latter sort are all annuities on lives.

*First sort, or annuities certain.*

Let  $r$  denote the interest of £1 for a year, and  $n$  the term or number of years during which any annuity is to be paid. Let  $p$  denote the value of the perpetuity, or the quotient arising from dividing £1 by its interest for a year. Let  $y$  denote the value of an annuity  $n$  years, supposing it to be paid yearly;  $h$  its value payable half yearly; and  $q$  its value payable quarterly.

THEOREM I.

$$y = p - \frac{1}{r \times 1 + r} \Big|_n$$

THEOREM II.

$$h = p - \frac{1}{r \times 1 + \frac{r}{2}} \Big|_{2n}$$

THEOREM III.

$$q = p - \frac{1}{r \times 1 + \frac{r}{4}} \Big|_{4n}$$

## EXAMPLES.

1. Let the rate of interest be 4 per cent. and the term 5 years, and consequently  $r = .04$ ;  $n = 5$ ;  $p = 25$ .

$$\text{Then } y = 4,4518$$

$$h = 4,4913$$

$$q = 4,5120$$

2. Interest being the same, let the term be 50 years.

$$\text{Then } y = 21,482$$

$$h = 21,549$$

$$q = 21,582$$

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*Second sort, or life annuities.*

Let  $r$ , as before, be the interest of £1 for a year;  $n$  the complement of a given life;\*  $y$ ,  $h$  and  $q$  the values respectively of an annuity certain for  $n$  years payable yearly, half yearly or quarterly;  $P$  the perpetuity;  $Y$  the present value of an annuity on a life whose complement is  $n$ , payable yearly;  $H$  the value of the same annuity payable half yearly; and  $Q$  the value of the same annuity payable quarterly.

$$\text{Then } Y = P - \frac{1 + r}{nr} \times y$$

$$H = P - \frac{1 + \frac{r}{2}}{nr} \times h$$

$$Q = P - \frac{1 + \frac{r}{4}}{nr} \times q$$

\* The complement of a life is double the expectation.

## EXAMPLE.

Let the life be supposed of the age of 36, the complement of such a life, by table 8, is 50. Therefore  $n$  will be 50. Let the rate of interest be 4 per cent. or  $r = ,04$ .  $P = 25$ ;  $y = 21,482$ , by table 2;  $h = 21,549$ ;  $q = 21,582$ . See the last example.

$$\text{Therefore } Y = 25 - \frac{1,04}{50 \times ,04} \times 21,482 = 13,829$$

$$H = 25 - \frac{1,02}{50 \times ,04} \times 21,549 = 14,010$$

$$Q = 25 - \frac{1,01}{50 \times ,04} \times 21,582 = 14,101$$

It appears that whatever be the rate of interest or the number of lives, a fifth of a year's purchase will be generally more than a sufficient addition, if the value of the annuity is desired payable half yearly; and three-tenths of a year's purchase, if the value of the annuity is desired payable quarterly.

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*Of Purchasing Freehold or real Estates.*

All freehold or real estates are supposed to be purchased or bought to continue for ever. The true value of such estates is found by dividing the rent by the interest for a year.

## EXAMPLE.

Suppose a freehold estate of £75 yearly rent was to be sold; what is it worth, allowing the buyer 3 per cent. for his money?

£75 divided by ,03, gives £2500 the answer.

Had the interest been 4 per cent. £75 divided by ,04, gives £1875.

|   |   |   |   |      |   |        |
|---|---|---|---|------|---|--------|
| — | 5 | — | — | ,05, | — | £1500: |
| — | 6 | — | — | ,06, | — | £1250. |

## TABLE XLIII.

Shewing the decimal corresponding to every penny in the pound.

| s. d. | Deci-<br>mal. | s. d. | Deci-<br>mal. | s. d. | Deci-<br>mal. | s. d. | Deci-<br>mal. | s. d. | Deci-<br>mal. | £. s. d. | Deci-<br>mal. |
|-------|---------------|-------|---------------|-------|---------------|-------|---------------|-------|---------------|----------|---------------|
| 0 1   | ,094          | 3 6   | ,175          | 6 11  | ,346          | 10 2  | ,508          | 13 6  | ,675          | 0 16 10  | ,842          |
| 0 2   | ,098          | 3 7   | ,179          | 7 0   | ,350          | 10 3  | ,512          | 13 7  | ,679          | 0 16 11  | ,846          |
| 0 3   | ,012          | 3 8   | ,183          |       |               | 10 4  | ,517          | 13 8  | ,683          | 0 17 0   | ,850          |
| 0 4   | ,017          | 3 9   | ,187          | 7 1   | ,354          | 10 5  | ,521          | 13 9  | ,687          |          |               |
| 0 5   | ,021          | 3 10  | ,192          | 7 2   | ,358          | 10 6  | ,525          | 13 10 | ,692          | 0 17 1   | ,854          |
| 0 6   | ,025          | 3 11  | ,196          | 7 3   | ,362          | 10 7  | ,529          | 13 11 | ,696          | 0 17 2   | ,858          |
| 0 7   | ,029          | 4 0   | ,200          | 7 4   | ,367          | 10 8  | ,533          | 14 0  | ,700          | 0 17 3   | ,862          |
| 0 8   | ,033          |       |               | 7 5   | ,371          | 10 9  | ,537          |       |               | 0 17 4   | ,867          |
| 0 9   | ,037          | 4 1   | ,204          | 7 6   | ,375          | 10 10 | ,542          | 14 1  | ,704          | 0 17 5   | ,871          |
| 0 10  | ,042          | 4 2   | ,208          | 7 7   | ,379          | 10 11 | ,546          | 14 2  | ,708          | 0 17 6   | ,875          |
| 0 11  | ,046          | 4 3   | ,212          | 7 8   | ,383          | 11 0  | ,550          | 14 3  | ,712          | 0 17 7   | ,879          |
| 1 0   | ,050          | 4 4   | ,217          | 7 9   | ,387          |       |               | 14 4  | ,717          | 0 17 8   | ,883          |
|       |               | 4 5   | ,222          | 7 10  | ,392          | 11 1  | ,554          | 14 5  | ,721          | 0 17 9   | ,887          |
| 1 1   | ,054          | 4 6   | ,225          | 7 11  | ,396          | 11 2  | ,558          | 14 6  | ,725          | 0 17 10  | ,892          |
| 1 2   | ,058          | 4 7   | ,229          | 8 0   | ,400          | 11 3  | ,562          | 14 7  | ,729          | 0 17 11  | ,896          |
| 1 3   | ,062          | 4 8   | ,233          |       |               | 11 4  | ,567          | 14 8  | ,733          | 0 18 0   | ,900          |
| 1 4   | ,067          | 4 9   | ,237          | 8 1   | ,404          | 11 5  | ,571          | 14 9  | ,737          |          |               |
| 1 5   | ,071          | 4 10  | ,242          | 8 2   | ,408          | 11 6  | ,575          | 14 10 | ,742          | 0 18 1   | ,904          |
| 1 6   | ,075          | 4 11  | ,246          | 8 3   | ,412          | 11 7  | ,579          | 14 11 | ,746          | 0 18 2   | ,908          |
| 1 7   | ,079          | 5 0   | ,250          | 8 4   | ,417          | 11 8  | ,583          | 15 0  | ,750          | 0 18 3   | ,912          |
| 1 8   | ,083          |       |               | 8 5   | ,421          | 11 9  | ,587          |       |               | 0 18 4   | ,917          |
| 1 9   | ,087          | 5 1   | ,254          | 8 6   | ,425          | 11 10 | ,592          | 15 1  | ,754          | 0 18 5   | ,921          |
| 1 10  | ,092          | 5 2   | ,258          | 8 7   | ,429          | 11 11 | ,596          | 15 2  | ,758          | 0 18 6   | ,925          |
| 1 11  | ,096          | 5 3   | ,262          | 8 8   | ,433          | 12 0  | ,600          | 15 3  | ,762          | 0 18 7   | ,929          |
| 2 0   | ,100          | 5 4   | ,267          | 8 9   | ,437          |       |               | 15 4  | ,767          | 0 18 8   | ,933          |
|       |               | 5 5   | ,271          | 8 10  | ,442          | 12 1  | ,604          | 15 5  | ,771          | 0 18 9   | ,937          |
| 2 1   | ,104          | 5 6   | ,275          | 8 11  | ,446          | 12 2  | ,608          | 15 6  | ,775          | 0 18 10  | ,942          |
| 2 2   | ,108          | 5 7   | ,279          | 9 0   | ,450          | 12 3  | ,612          | 15 7  | ,779          | 0 18 11  | ,946          |
| 2 3   | ,112          | 5 8   | ,283          |       |               | 12 4  | ,617          | 15 8  | ,783          | 0 19 0   | ,950          |
| 2 4   | ,117          | 5 9   | ,287          | 9 1   | ,454          | 12 5  | ,621          | 15 9  | ,787          |          |               |
| 2 5   | ,121          | 5 10  | ,292          | 9 2   | ,458          | 12 6  | ,625          | 15 10 | ,792          | 0 19 1   | ,954          |
| 2 6   | ,125          | 5 11  | ,296          | 9 3   | ,462          | 12 7  | ,629          | 15 11 | ,796          | 0 19 2   | ,958          |
| 2 7   | ,129          | 6 0   | ,300          | 9 4   | ,467          | 12 8  | ,633          | 16 0  | ,800          | 0 19 3   | ,962          |
| 2 8   | ,133          |       |               | 9 5   | ,471          | 12 9  | ,637          |       |               | 0 19 4   | ,967          |
| 2 9   | ,137          | 6 1   | ,304          | 9 6   | ,475          | 12 10 | ,642          | 16 1  | ,804          | 0 19 5   | ,971          |
| 2 10  | ,142          | 6 2   | ,308          | 9 7   | ,479          | 12 11 | ,646          | 16 2  | ,808          | 0 19 6   | ,975          |
| 2 11  | ,146          | 6 3   | ,312          | 9 8   | ,483          | 13 0  | ,650          | 16 3  | ,812          | 0 19 7   | ,979          |
| 3 0   | ,150          | 6 4   | ,317          | 9 9   | ,487          |       |               | 16 4  | ,817          | 0 19 8   | ,983          |
|       |               | 6 5   | ,321          | 9 10  | ,492          | 13 1  | ,654          | 16 5  | ,821          | 0 19 9   | ,987          |
| 3 1   | ,154          | 6 6   | ,325          | 9 11  | ,496          | 13 2  | ,658          | 16 6  | ,825          | 0 19 10  | ,992          |
| 3 2   | ,158          | 6 7   | ,329          | 10 0  | ,500          | 13 3  | ,662          | 16 7  | ,829          | 0 19 11  | ,996          |
| 3 3   | ,162          | 6 8   | ,333          |       |               | 13 4  | ,667          | 16 8  | ,833          | 1 0 0    | ,000          |
| 3 4   | ,167          | 6 9   | ,337          | 10 1  | ,504          | 13 5  | ,671          | 16 9  | ,837          |          |               |
| 3 5   | ,171          | 6 10  | ,342          |       |               |       |               |       |               |          |               |

## EXAMPLE.

The value of the decimal ,183, is 3s. 8d.—,308, is 6s. 2d.—,917, is 18s. 4d.

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## APPENDIX.

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## APPENDIX.

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*A table of the duties granted by stat. 55, Geo. III. cap. 184, on legacies, and successions to personal or moveable estate upon intestacy; and on legacies or monies out of real or heritable estate, viz.*

For every legacy, specific or pecuniary, or of any other description, given by will or testamentary instrument, either out of personal or moveable estate; or out of or charged upon real or heritable estate, or out of any monies to arise by the sale, mortgage or other disposition of the same or any part thereof. Also for the clear residue, and for every share of the clear residue, as well of such personal or moveable estate, whether the title thereto shall accrue by virtue of any testamentary disposition, or upon a partial or total intestacy; as of the monies to arise from the sale, mortgage or other disposition of any real or heritable estate, directed to be sold, mortgaged, or otherwise disposed of, by will or testamentary instrument: where any such legacy, or monies, or residue, or any share of such residue, shall be of the amount or value of £20 or upwards; and where the same (not being chargeable with duty as an arrear under any of the former acts) shall be paid, delivered, retained, satisfied or discharged, after the 31st day of Aug. 1815, and shall have been given, or have devolved to or for the benefit of

Out of real or personal estate, where the testator, testatrix, or intestate, died *after* the 5th day of April, 1805.

A child of the deceased, or any descendant of a child of the deceased, or the father or mother, or any lineal ancestor of the deceased, a duty on the amount or value thereof, at and after the rate of .....

|             |    |    |
|-------------|----|----|
| Per Centum. |    |    |
| £.          | s. | d. |
| 1           | 0  | 0  |

|                                                                                                                                                                                                                                                |   | Per Centum. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|
|                                                                                                                                                                                                                                                |   | £. s. d.    |
| A brother or sister of the deceased, or any descendant of a brother or sister of the deceased; a duty on the amount or value thereof, at and after the rate of .....                                                                           | } | 3 0 0       |
| A brother or sister of the father or mother of the deceased, or any descendant of a brother or sister of the father or mother of the deceased; a duty on the amount or value thereof, at and after the rate of .....                           |   | 5 0 0       |
| A brother or sister of a grandfather or grandmother of the deceased, or any descendant of a brother or sister of a grandfather or grandmother of the deceased; a duty on the amount or value thereof, at and after the rate of .....           |   | 6 0 0       |
| Any person, in any other degree of collateral consanguinity to the deceased, than is above described, or to or for the benefit of any stranger in blood to the deceased; a duty on the amount or value thereof, at and after the rate of ..... |   | 10 0 0      |

Where a legatee takes two or more distinct legacies, which shall together be of the amount or value of £20, each are chargeable with duty.

All gifts of annuities, or by way of annuity, or of any other partial benefit or interest, out of any such estate or effects as aforesaid, are deemed legacies within the intent and meaning of the schedule to the above act. And the same are to be valued according to the tables annexed to stat. 36 Geo. III. cap. 52. and the duties chargeable thereon paid by four equal annual payments, as directed by the 8th section in that act.

Legacies and residues, or shares of residue, of any such estate or effects as aforesaid, giving or devolving to or for the benefit of the husband or wife of the deceased, are exempted from duty. And all legacies which were exempted from duty, by stat. 39, Geo. III. cap. 73, for exempting certain specific legacies, given to bodies corporate or other public bodies, from the payment of duty, are exempted by statute 55, Geo. III. cap. 184.

By stat. 36, Geo. III. cap. 52, sect. 6, every executor or administrator is accountable for the duty, upon retainer for his own benefit, or for the benefit of any other person, or upon payment, &c. of any legacy

or residue. And by sect. 35, before any retainer to his own use, he must transmit to the commissioners of stamp duties, a note containing the particulars of such legacy or residue, and the amount or value thereof, and the duty he shall offer to pay thereon, and in case he shall neglect to pay the duty within fourteen days after the same ought to be paid, he will forfeit treble the value of such duty. Sect. 28, imposes a penalty of £10 per centum on the amount or value of the legacy, or residue, or share of residue, as well upon the person paying, as on the person receiving the same, without taking or signing a receipt or discharge as required by sect. 27, and causing the same to be duly stamped within the time allowed.

And by sect. 29, every such receipt or discharge must be brought either to the head office, or to the nearest distributor of stamps, and the proper duty paid, within twenty-one days after the date thereof, to avoid the penalty of £10 per centum, on such duty, for not having paid the same within that time.

By sect. 9, the value of annuities charged on, and payable out of any legacy, is to be calculated, and the duty charged as directed by sect. 8, and the duty on the legacy so charged is to be calculated on the value of the legacy, after deducting the value of the annuity; and the duty for the annuity is to be retained and paid by the person entitled to the legacy. And by sect. 10, the duty payable upon any legacy given to purchase an annuity, is to be calculated on the sum necessary to purchase such annuity according to the tables, and to be deducted therefrom, and paid as in the case of other legacies.

By sect. 11, the duty on legacies whose value can only be ascertained by application of the fund allotted, is to be charged on the money as applied.

By sect. 12, on any legacy or residue to be enjoyed by different persons in succession, or having partial interests therein; if the legatees are liable to the same rate, the duty is to be charged on the amount as on a legacy to one person—and if to different rates, then every legatee for life, is to be charged with duty as for an annuity.

And by sect. 13, the duty payable on such legacy, &c. if chargeable at the same rate, is to be deducted by the executor, on payment thereof to a trustee—and if not paid to a trustee, then such duty is to be paid out of the capital, upon receipt by any person so entitled in succession to any produce thereof—and where the duty is chargeable at different rates, then the executor is to be accountable, the same as such person would be in case of immediate bequest, unless the property be paid to or vested in a trustee, who will then be chargeable with the duty, as an executor.

By sect. 14, articles, of plate, furniture, or other things, not yielding any income, while enjoyed in kind only, not liable to duty, till in possession of persons having power to dispose thereof, or an absolute interest therein.

By sect. 16, the duty on legacies in joint tenancy is to be paid in proportion to the interest of the persons respectively in such bequest, who, if entitled on survivorship or severance to any larger interest, are to be charged as if originally entitled.

By sect. 17, the duty on any legacy or residue subject to any contingency which may defeat the gift, whereupon the same may go to some other person, (unless chargeable as an annuity) is to be charged as for an absolute bequest, and paid out of the capital of such legacy or residue.

By sect. 18, the duty on any legacy or residue subjected to any power of appointment for the benefit of any person specially named or described as objects of such power, is to be charged as on property given in succession—and where any property be given for a limited interest, with a general power of appointment to any person to whom it would not belong in default of appointment, the same, on the execution of the power, is to be charged with duty as if it had been immediately given to him—and where any property given with such general power of appointment, would in default of appointment, belong to the person having such power, the duty is to be charged thereon as if the same had been given to him absolutely, without any power.

By sect. 19, personal estate directed to be applied in the purchase of real estate, is chargeable with duty, unless given in succession, and then each person entitled, is to pay duty as if the same had not been so directed, unless actually applied in such purchase before the duty accrued.

And by sect. 20, estates *pur autre vie*, applicable by law in the same manner as personal estates, are chargeable with duty.

By sect. 22, in cases of property not reduced into money, either party may set a value thereon, and offer to pay duty accordingly, or may require the commissioners to appoint a valuer, at the expense of the person liable to the duty, and the commissioners may accept the duty offered upon the value, without any appraisement. But if they should not be satisfied with the value so set, they may appoint an appraiser, on whose valuation the duty shall be assessed, and the person chargeable may appeal therefrom to the commissioners of the land tax, as therein directed. And all such property is to be valued at the time when it is paid, delivered or retained.

TABLE I.

Showing the values of an annuity of £100 per annum, held on a single life, and payable yearly, by stat. 36, Geo. III. c. 52.

| Age.   | Value.  | Age. | Value.  | Age. | Value. |
|--------|---------|------|---------|------|--------|
|        | £. s.   |      | £. s.   |      | £. s.  |
| Birth. | 1032 14 | 31   | 1463 18 | 61   | 879 10 |
| 1      | 1346 10 | 32   | 1449 10 | 62   | 854 14 |
| 2      | 1563 6  | 33   | 1434 14 | 63   | 829 2  |
| 3      | 1646 4  | 34   | 1419 10 | 64   | 803 0  |
| 4      | 1701 0  | 35   | 1403 18 | 65   | 776 2  |
| 5      | 1724 16 | 36   | 1388 0  | 66   | 748 16 |
| 6      | 1748 4  | 37   | 1371 12 | 67   | 721 2  |
| 7      | 1761 2  | 38   | 1354 16 | 68   | 693 0  |
| 8      | 1766 4  | 39   | 1337 10 | 69   | 664 14 |
| 9      | 1762 10 | 40   | 1319 14 | 70   | 636 2  |
| 10     | 1752 6  | 41   | 1301 16 | 71   | 607 10 |
| 11     | 1739 6  | 42   | 1283 16 | 72   | 579 0  |
| 12     | 1725 2  | 43   | 1265 14 | 73   | 550 14 |
| 13     | 1710 6  | 44   | 1247 4  | 74   | 523 0  |
| 14     | 1695 0  | 45   | 1228 6  | 75   | 496 4  |
| 15     | 1679 2  | 46   | 1208 18 | 76   | 471 0  |
| 16     | 1662 10 | 47   | 1189 0  | 77   | 445 14 |
| 17     | 1646 4  | 48   | 1168 10 | 78   | 419 14 |
| 18     | 1630 18 | 49   | 1147 10 | 79   | 392 2  |
| 19     | 1616 14 | 50   | 1126 8  | 80   | 364 6  |
| 20     | 1603 6  | 51   | 1105 14 | 81   | 337 14 |
| 21     | 1591 4  | 52   | 1084 18 | 82   | 312 4  |
| 22     | 1579 14 | 53   | 1063 14 | 83   | 288 14 |
| 23     | 1568 0  | 54   | 1042 2  | 84   | 270 16 |
| 24     | 1556 0  | 55   | 1020 2  | 85   | 254 6  |
| 25     | 1543 16 | 56   | 997 14  | 86   | 239 6  |
| 26     | 1531 4  | 57   | 974 18  | 87   | 225 2  |
| 27     | 1518 8  | 58   | 951 12  | 88   | 213 2  |
| 28     | 1505 6  | 59   | 928 0   | 89   | 196 14 |
| 29     | 1491 16 | 60   | 903 18  | 90   | 175 16 |
| 30     | 1478 2  |      |         |      |        |

TABLE II.

Shewing the values of an annuity of £100 per annum, payable yearly, for any number of years, not exceeding 90, by stat. 36, Geo. III. c. 52.

| Years. | Value.  | Years. | Value.  | Years. | Value.  |
|--------|---------|--------|---------|--------|---------|
|        | £. s.   |        | £. s.   |        | £. s.   |
| 1      | 96 2    | 31     | 1758 16 | 61     | 2271 8  |
| 2      | 188 12  | 32     | 1787 6  | 62     | 2280 4  |
| 3      | 277 10  | 33     | 1814 14 | 63     | 2288 14 |
| 4      | 362 18  | 34     | 1841 2  | 64     | 2296 16 |
| 5      | 445 2   | 35     | 1866 8  | 65     | 2304 12 |
| 6      | 524 4   | 36     | 1890 16 | 66     | 2312 2  |
| 7      | 600 4   | 37     | 1914 4  | 67     | 2319 8  |
| 8      | 673 4   | 38     | 1936 14 | 68     | 2326 6  |
| 9      | 743 10  | 39     | 1958 8  | 69     | 2333 0  |
| 10     | 811 0   | 40     | 1979 4  | 70     | 2339 8  |
| 11     | 876 0   | 41     | 1999 6  | 71     | 2345 12 |
| 12     | 938 10  | 42     | 2018 10 | 72     | 2351 10 |
| 13     | 998 10  | 43     | 2037 0  | 73     | 2357 4  |
| 14     | 1056 6  | 44     | 2054 16 | 74     | 2362 14 |
| 15     | 1111 16 | 45     | 2072 0  | 75     | 2368 0  |
| 16     | 1165 4  | 46     | 2088 8  | 76     | 2373 2  |
| 17     | 1216 10 | 47     | 2104 4  | 77     | 2377 18 |
| 18     | 1265 18 | 48     | 2119 10 | 78     | 2382 12 |
| 19     | 1313 6  | 49     | 2134 2  | 79     | 2387 4  |
| 20     | 1359 0  | 50     | 2148 4  | 80     | 2391 10 |
| 21     | 1402 18 | 51     | 2161 14 | 81     | 2395 14 |
| 22     | 1445 2  | 52     | 2174 14 | 82     | 2399 14 |
| 23     | 1485 12 | 53     | 2187 4  | 83     | 2403 10 |
| 24     | 1524 12 | 54     | 2199 4  | 84     | 2407 4  |
| 25     | 1562 4  | 55     | 2210 16 | 85     | 2410 16 |
| 26     | 1598 4  | 56     | 2221 18 | 86     | 2414 4  |
| 27     | 1632 18 | 57     | 2232 12 | 87     | 2417 10 |
| 28     | 1666 6  | 58     | 2242 18 | 88     | 2420 14 |
| 29     | 1698 6  | 59     | 2252 16 | 89     | 2423 14 |
| 30     | 1729 4  | 60     | 2262 6  | 90     | 2426 14 |

TABLE III.

Shewing the values of an annuity of £100 per annum, payable yearly, held on the joint continuance of two lives, by stat. 36, Geo. III. c. 52.

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                    |
|                    | 89                   | 94 17                    |                    | 42                   | 167 9                    |                    | 88                   | 104 9                    |
|                    | 88                   | 97 10                    |                    | 41                   | 167 14                   |                    | 87                   | 107 9                    |
|                    | 87                   | 100 3                    |                    | 39                   | 168 1                    |                    | 86                   | 110 8                    |
|                    | 86                   | 102 16                   |                    | 38                   | 168 5                    |                    | 85                   | 113 8                    |
|                    | 84                   | 109 17                   |                    | 37                   | 168 8                    |                    | 83                   | 121 13                   |
|                    | 83                   | 114 7                    |                    | 36                   | 168 12                   |                    | 82                   | 126 18                   |
|                    | 82                   | 118 16                   |                    | 34                   | 168 18                   |                    | 81                   | 132 3                    |
|                    | 81                   | 123 6                    |                    | 33                   | 169 1                    |                    | 80                   | 137 8                    |
|                    | 79                   | 130 10                   |                    | 32                   | 169 3                    |                    | 78                   | 145 11                   |
|                    | 78                   | 133 4                    |                    | 31                   | 169 6                    |                    | 77                   | 148 8                    |
|                    | 77                   | 135 18                   |                    | 29                   | 169 10                   |                    | 76                   | 151 5                    |
|                    | 76                   | 138 12                   |                    | 28                   | 169 12                   |                    | 75                   | 154 2                    |
|                    | 74                   | 143 7                    |                    | 27                   | 169 14                   |                    | 73                   | 159 6                    |
|                    | 73                   | 145 8                    |                    | 26                   | 169 16                   |                    | 72                   | 161 12                   |
|                    | 72                   | 147 9                    |                    | 24                   | 170 0                    |                    | 71                   | 163 18                   |
|                    | 71                   | 149 10                   |                    | 23                   | 170 2                    |                    | 70                   | 166 4                    |
|                    | 69                   | 152 14                   |                    | 22                   | 170 4                    |                    | 68                   | 169 16                   |
|                    | 68                   | 153 18                   |                    | 21                   | 170 6                    |                    | 67                   | 171 3                    |
| 90                 | 67                   | 155 2                    | 90                 | 19                   | 170 15                   | 89                 | 66                   | 172 9                    |
|                    | 66                   | 156 6                    |                    | 18                   | 171 2                    |                    | 65                   | 173 16                   |
|                    | 64                   | 158 3                    |                    | 17                   | 171 9                    |                    | 63                   | 175 17                   |
|                    | 63                   | 158 16                   |                    | 16                   | 171 16                   |                    | 62                   | 176 12                   |
|                    | 62                   | 159 9                    |                    | 15                   | 172 2                    |                    | 61                   | 177 7                    |
|                    | 61                   | 160 2                    |                    | 14                   | 172 4                    |                    | 60                   | 178 2                    |
|                    | 59                   | 161 6                    |                    | 13                   | 172 5                    |                    | 58                   | 179 7                    |
|                    | 58                   | 161 16                   |                    | 12                   | 172 7                    |                    | 57                   | 179 19                   |
|                    | 57                   | 162 6                    |                    | 11                   | 172 8                    |                    | 56                   | 180 10                   |
|                    | 56                   | 162 16                   |                    | 10                   | 172 9                    |                    | 55                   | 181 2                    |
|                    | 54                   | 163 13                   |                    | 9                    | 172 4                    |                    | 53                   | 182 3                    |
|                    | 53                   | 164 1                    |                    | 8                    | 171 10                   |                    | 52                   | 182 12                   |
|                    | 52                   | 164 8                    |                    | 7                    | 170 5                    |                    | 51                   | 183 1                    |
|                    | 51                   | 164 16                   |                    | 6                    | 168 15                   |                    | 50                   | 183 10                   |
|                    | 49                   | 165 9                    |                    | 5                    | 166 17                   |                    | 48                   | 184 7                    |
|                    | 48                   | 165 16                   |                    | 4                    | 165 13                   |                    | 47                   | 184 15                   |
|                    | 47                   | 166 3                    |                    | 3                    | 161 17                   |                    | 46                   | 185 2                    |
|                    | 46                   | 166 10                   |                    | 2                    | 156 10                   |                    | 45                   | 185 10                   |
|                    | 44                   | 167 0                    |                    | 1                    | 138 19                   |                    | 43                   | 186 3                    |
|                    | 43                   | 167 5                    |                    |                      |                          |                    | 42                   | 186 8                    |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                    |
| 89                 | 41                   | 186 13                   | 88                 | 79                   | 148 18                   | 88                 | 25                   | 204 11                   |
|                    | 40                   | 186 18                   |                    | 77                   | 157 12                   |                    | 24                   | 204 14                   |
|                    | 38                   | 187 8                    |                    | 76                   | 160 13                   |                    | 22                   | 205 1                    |
|                    | 37                   | 187 12                   |                    | 75                   | 163 13                   |                    | 21                   | 205 6                    |
|                    | 36                   | 187 16                   |                    | 74                   | 166 14                   |                    | 20                   | 205 11                   |
|                    | 35                   | 188 0                    |                    | 72                   | 172 2                    |                    | 19                   | 205 16                   |
|                    | 33                   | 188 7                    |                    | 71                   | 174 10                   |                    | 17                   | 206 10                   |
|                    | 32                   | 188 10                   |                    | 70                   | 176 18                   |                    | 16                   | 206 18                   |
|                    | 31                   | 188 13                   |                    | 69                   | 179 6                    |                    | 15                   | 207 6                    |
|                    | 30                   | 188 16                   |                    | 67                   | 183 1                    |                    | 14                   | 207 14                   |
|                    | 28                   | 189 0                    |                    | 66                   | 184 9                    |                    | 13                   | 208 2                    |
|                    | 27                   | 189 3                    |                    | 65                   | 185 16                   |                    | 12                   | 208 4                    |
|                    | 26                   | 189 5                    |                    | 64                   | 187 4                    |                    | 11                   | 208 6                    |
|                    | 25                   | 189 8                    |                    | 62                   | 189 9                    |                    | 10                   | 208 5                    |
|                    | 23                   | 189 13                   |                    | 61                   | 190 6                    |                    | 9                    | 207 19                   |
|                    | 22                   | 189 17                   |                    | 60                   | 191 3                    |                    | 8                    | 207 2                    |
|                    | 21                   | 190 0                    |                    | 59                   | 192 0                    |                    | 7                    | 205 10                   |
|                    | 20                   | 190 4                    |                    | 57                   | 193 9                    |                    | 6                    | 203 11                   |
|                    | 18                   | 190 16                   |                    | 56                   | 194 2                    |                    | 5                    | 201 0                    |
|                    | 17                   | 191 4                    |                    | 55                   | 194 15                   |                    | 4                    | 199 4                    |
|                    | 16                   | 191 12                   |                    | 54                   | 195 8                    |                    | 3                    | 194 6                    |
|                    | 15                   | 192 0                    |                    | 52                   | 196 11                   |                    | 2                    | 187 7                    |
|                    | 14                   | 192 8                    |                    | 51                   | 197 2                    |                    | 1                    | 165 13                   |
|                    | 13                   | 192 10                   |                    | 50                   | 197 13                   | 87                 | 86                   | 117 1                    |
|                    | 12                   | 192 12                   |                    | 49                   | 198 4                    |                    | 85                   | 121 14                   |
|                    | 11                   | 192 13                   |                    | 47                   | 199 1                    |                    | 84                   | 126 7                    |
|                    | 10                   | 192 12                   |                    | 46                   | 199 9                    |                    | 83                   | 131 0                    |
|                    | 9                    | 192 7                    |                    | 45                   | 199 16                   |                    | 81                   | 141 3                    |
|                    | 8                    | 191 10                   |                    | 44                   | 200 4                    |                    | 80                   | 146 14                   |
|                    | 7                    | 190 2                    |                    | 42                   | 200 18                   |                    | 79                   | 152 5                    |
|                    | 6                    | 188 7                    |                    | 41                   | 201 5                    |                    | 78                   | 157 16                   |
|                    | 5                    | 186 2                    |                    | 40                   | 201 11                   |                    | 76                   | 166 10                   |
|                    | 4                    | 184 11                   |                    | 39                   | 201 18                   |                    | 75                   | 169 15                   |
|                    | 3                    | 180 3                    |                    | 37                   | 202 8                    |                    | 74                   | 172 19                   |
|                    | 2                    | 173 19                   |                    | 36                   | 202 13                   |                    | 73                   | 176 4                    |
|                    | 1                    | 154 1                    |                    | 35                   | 202 17                   |                    | 71                   | 181 16                   |
|                    |                      |                          |                    | 34                   | 203 2                    |                    | 70                   | 184 5                    |
|                    |                      |                          |                    | 32                   | 203 9                    |                    | 69                   | 186 13                   |
|                    |                      |                          |                    | 31                   | 203 12                   |                    | 68                   | 189 2                    |
| 88                 | 87                   | 107 11                   |                    | 30                   | 203 15                   |                    | 66                   | 192 18                   |
|                    | 86                   | 112 3                    |                    | 29                   | 203 18                   |                    | 65                   | 194 6                    |
|                    | 85                   | 116 14                   |                    | 27                   | 204 5                    |                    | 64                   | 195 14                   |
|                    | 84                   | 121 6                    |                    | 26                   | 204 8                    |                    | 63                   | 197 2                    |
|                    | 82                   | 131 13                   |                    |                      |                          |                    |                      |                          |
|                    | 81                   | 137 8                    |                    |                      |                          |                    |                      |                          |
|                    | 80                   | 143 3                    |                    |                      |                          |                    |                      |                          |

| Age of<br>the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|-------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                         |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 87                      | 61                         | 199 8                          | 87                       | 9                          | 219 6                          | 86                       | 43                         | 223 6                          |
|                         | 60                         | 200 6                          |                          | 8                          | 218 8                          |                          | 42                         | 223 14                         |
|                         | 59                         | 201 4                          |                          | 7                          | 216 14                         |                          | 40                         | 224 9                          |
|                         | 58                         | 202 2                          |                          | 6                          | 214 12                         |                          | 39                         | 224 17                         |
|                         | 56                         | 203 13                         |                          | 5                          | 211 16                         |                          | 38                         | 225 4                          |
|                         | 55                         | 204 6                          |                          | 4                          | 209 16                         |                          | 37                         | 225 12                         |
|                         | 54                         | 204 19                         |                          | 3                          | 204 10                         |                          | 35                         | 226 5                          |
|                         | 53                         | 205 12                         |                          | 2                          | 197 0                          |                          | 34                         | 226 10                         |
|                         | 51                         | 206 18                         |                          | 1                          | 173 19                         |                          | 33                         | 226 15                         |
|                         | 50                         | 207 10                         |                          |                            |                                |                          | 32                         | 227 0                          |
|                         | 49                         | 208 2                          | 86                       | 85                         | 125 3                          |                          | 30                         | 227 8                          |
|                         | 48                         | 208 14                         |                          | 84                         | 130 16                         |                          | 29                         | 227 12                         |
|                         | 46                         | 209 14                         |                          | 83                         | 136 9                          |                          | 28                         | 227 16                         |
|                         | 45                         | 210 2                          |                          | 82                         | 142 2                          |                          | 27                         | 228 0                          |
|                         | 44                         | 210 10                         |                          | 80                         | 153 0                          |                          | 25                         | 228 7                          |
|                         | 43                         | 210 18                         |                          | 79                         | 158 5                          |                          | 24                         | 228 10                         |
|                         | 41                         | 211 13                         |                          | 78                         | 163 9                          |                          | 23                         | 228 13                         |
|                         | 40                         | 212 0                          |                          | 77                         | 168 14                         |                          | 22                         | 228 16                         |
|                         | 39                         | 212 7                          |                          | 75                         | 177 8                          |                          | 20                         | 229 10                         |
|                         | 38                         | 212 14                         |                          | 74                         | 180 18                         |                          | 19                         | 230 0                          |
|                         | 36                         | 213 5                          |                          | 73                         | 184 8                          |                          | 18                         | 230 10                         |
|                         | 35                         | 213 10                         |                          | 72                         | 187 18                         |                          | 17                         | 231 0                          |
|                         | 34                         | 213 15                         |                          | 70                         | 193 16                         |                          | 15                         | 231 16                         |
|                         | 33                         | 214 0                          |                          | 69                         | 196 5                          |                          | 14                         | 232 2                          |
|                         | 31                         | 214 7                          |                          | 68                         | 198 13                         |                          | 13                         | 232 8                          |
|                         | 30                         | 214 11                         |                          | 67                         | 201 2                          |                          | 12                         | 232 14                         |
|                         | 29                         | 214 14                         |                          | 65                         | 204 18                         |                          | 11                         | 233 1                          |
|                         | 28                         | 214 18                         |                          | 64                         | 206 6                          |                          | 10                         | 233 1                          |
|                         | 26                         | 215 5                          |                          | 63                         | 207 14                         |                          | 9                          | 232 16                         |
|                         | 25                         | 215 8                          |                          | 62                         | 209 2                          |                          | 8                          | 231 15                         |
|                         | 24                         | 215 11                         |                          | 60                         | 211 9                          |                          | 7                          | 230 0                          |
|                         | 23                         | 215 14                         |                          | 59                         | 212 8                          |                          | 6                          | 227 15                         |
|                         | 21                         | 216 3                          |                          | 58                         | 213 7                          |                          | 5                          | 224 15                         |
|                         | 20                         | 216 11                         |                          | 57                         | 214 6                          |                          | 4                          | 222 10                         |
|                         | 19                         | 216 18                         |                          | 55                         | 216 0                          |                          | 3                          | 216 16                         |
|                         | 18                         | 217 6                          |                          | 54                         | 216 14                         |                          | 2                          | 208 15                         |
|                         | 16                         | 218 1                          |                          | 53                         | 217 8                          |                          | 1                          | 184 1                          |
|                         | 15                         | 218 8                          |                          | 52                         | 218 2                          | 85                       |                            |                                |
|                         | 14                         | 218 15                         |                          | 50                         | 219 9                          |                          | 84                         | 139 5                          |
|                         | 13                         | 219 2                          |                          | 49                         | 220 2                          |                          | 83                         | 144 13                         |
|                         | 12                         | 219 10                         |                          | 48                         | 220 15                         |                          | 82                         | 150 0                          |
|                         | 11                         | 219 12                         |                          | 47                         | 221 8                          |                          | 81                         | 155 8                          |
|                         | 10                         | 219 12                         |                          | 45                         | 222 10                         |                          | 79                         | 165 15                         |
|                         |                            |                                |                          | 44                         | 222 18                         |                          | 78                         | 170 14                         |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 85                       | 77                         | 175 13                         | 85                       | 23                         | 242 10                         | 84                       | 56                         | 240 15                         |
|                          | 76                         | 180 12                         |                          | 22                         | 242 14                         |                          | 55                         | 241 16                         |
|                          | 74                         | 189 6                          |                          | 21                         | 242 18                         |                          | 53                         | 243 13                         |
|                          | 73                         | 193 1                          |                          | 19                         | 243 14                         |                          | 52                         | 244 10                         |
|                          | 72                         | 196 15                         |                          | 18                         | 244 7                          |                          | 51                         | 245 7                          |
|                          | 71                         | 200 9                          |                          | 17                         | 244 19                         |                          | 50                         | 246 4                          |
|                          | 69                         | 206 12                         |                          | 16                         | 245 12                         |                          | 48                         | 247 14                         |
|                          | 68                         | 209 1                          |                          | 14                         | 246 9                          |                          | 47                         | 248 8                          |
|                          | 67                         | 211 9                          |                          | 13                         | 246 14                         |                          | 46                         | 249 2                          |
|                          | 66                         | 213 18                         |                          | 12                         | 246 19                         |                          | 45                         | 249 16                         |
|                          | 64                         | 217 14                         |                          | 11                         | 247 4                          |                          | 43                         | 251 0                          |
|                          | 63                         | 219 3                          |                          | 10                         | 247 7                          |                          | 42                         | 251 10                         |
|                          | 62                         | 220 11                         |                          | 9                          | 247 2                          |                          | 41                         | 252 0                          |
|                          | 61                         | 222 0                          |                          | 8                          | 246 1                          |                          | 40                         | 252 10                         |
|                          | 59                         | 224 8                          |                          | 7                          | 244 2                          |                          | 38                         | 253 7                          |
|                          | 58                         | 225 8                          |                          | 6                          | 241 13                         |                          | 37                         | 253 15                         |
|                          | 57                         | 226 8                          |                          | 5                          | 238 9                          |                          | 36                         | 254 2                          |
|                          | 56                         | 227 8                          |                          | 4                          | 236 0                          |                          | 35                         | 254 10                         |
|                          | 54                         | 229 3                          |                          | 3                          | 229 16                         |                          | 33                         | 255 3                          |
|                          | 53                         | 229 18                         |                          | 2                          | 221 2                          |                          | 32                         | 255 9                          |
|                          | 52                         | 230 13                         |                          | 1                          | 194 17                         |                          | 31                         | 255 14                         |
|                          | 51                         | 231 8                          | 84                       | 83                         | 145 19                         |                          | 30                         | 256 0                          |
|                          | 49                         | 232 17                         |                          | 82                         | 153 5                          |                          | 28                         | 256 10                         |
|                          | 48                         | 233 11                         |                          | 81                         | 160 10                         |                          | 27                         | 256 15                         |
|                          | 47                         | 234 4                          |                          | 80                         | 167 16                         |                          | 26                         | 256 19                         |
|                          | 46                         | 234 18                         |                          | 78                         | 179 18                         |                          | 25                         | 257 4                          |
|                          | 44                         | 236 1                          |                          | 77                         | 184 14                         |                          | 23                         | 257 14                         |
|                          | 43                         | 236 10                         |                          | 76                         | 189 10                         |                          | 22                         | 258 0                          |
|                          | 42                         | 236 19                         |                          | 75                         | 194 6                          |                          | 21                         | 258 6                          |
|                          | 41                         | 237 8                          |                          | 73                         | 202 19                         |                          | 20                         | 258 12                         |
|                          | 39                         | 238 5                          |                          | 72                         | 206 16                         |                          | 18                         | 259 11                         |
|                          | 38                         | 238 13                         |                          | 71                         | 210 13                         |                          | 17                         | 260 4                          |
|                          | 37                         | 239 0                          |                          | 70                         | 214 10                         |                          | 16                         | 260 17                         |
|                          | 36                         | 239 8                          |                          | 68                         | 220 15                         |                          | 15                         | 261 10                         |
|                          | 34                         | 240 1                          |                          | 67                         | 223 4                          |                          | 13                         | 262 6                          |
|                          | 33                         | 240 6                          |                          | 66                         | 225 13                         |                          | 12                         | 262 8                          |
|                          | 32                         | 240 11                         |                          | 65                         | 228 2                          |                          | 11                         | 262 10                         |
|                          | 31                         | 240 16                         |                          | 63                         | 231 18                         |                          | 10                         | 262 12                         |
|                          | 29                         | 241 6                          |                          | 62                         | 233 7                          |                          | 9                          | 262 14                         |
|                          | 28                         | 241 10                         |                          | 61                         | 234 15                         |                          | 8                          | 261 13                         |
|                          | 27                         | 241 14                         |                          | 60                         | 236 4                          |                          | 7                          | 259 12                         |
|                          | 26                         | 241 18                         |                          | 58                         | 238 13                         |                          | 6                          | 256 18                         |
|                          | 24                         | 242 6                          |                          | 57                         | 239 14                         |                          | 5                          | 253 9                          |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 84                       | 4                          | 250 15                         |                          | 34                         | 270 18                         |                          | 64                         | 260 13                         |
|                          | 3                          | 244 2                          |                          | 32                         | 271 12                         |                          | 63                         | 263 2                          |
|                          | 2                          | 234 14                         |                          | 31                         | 271 18                         |                          | 61                         | 267 3                          |
|                          | 1                          | 206 12                         |                          | 30                         | 272 4                          |                          | 60                         | 268 14                         |
| 83                       | 82                         | 158 15                         |                          | 29                         | 272 10                         |                          | 59                         | 270 5                          |
|                          | 81                         | 166 11                         |                          | 27                         | 273 1                          |                          | 58                         | 271 16                         |
|                          | 80                         | 174 6                          |                          | 26                         | 273 6                          |                          | 56                         | 274 9                          |
|                          | 79                         | 182 2                          |                          | 25                         | 273 11                         |                          | 55                         | 275 13                         |
|                          | 77                         | 194 15                         |                          | 24                         | 273 16                         |                          | 54                         | 276 16                         |
|                          | 76                         | 199 12                         |                          | 22                         | 274 8                          |                          | 53                         | 278 0                          |
|                          | 75                         | 204 9                          |                          | 21                         | 274 16                         |                          | 51                         | 280 4                          |
|                          | 74                         | 209 6                          |                          | 20                         | 275 4                          |                          | 50                         | 281 5                          |
|                          | 72                         | 218 0                          |                          | 19                         | 275 12                         |                          | 49                         | 282 5                          |
|                          | 71                         | 221 18                         |                          | 17                         | 276 13                         |                          | 48                         | 283 6                          |
|                          | 70                         | 225 16                         | 83                       | 16                         | 277 7                          |                          | 46                         | 285 0                          |
|                          | 69                         | 229 14                         |                          | 15                         | 278 0                          |                          | 45                         | 285 14                         |
|                          | 67                         | 236 0                          |                          | 14                         | 278 14                         |                          | 44                         | 286 8                          |
|                          | 66                         | 238 9                          |                          | 12                         | 279 4                          |                          | 43                         | 287 2                          |
|                          | 65                         | 240 17                         |                          | 11                         | 279 1                          |                          | 41                         | 288 8                          |
|                          | 64                         | 243 6                          |                          | 10                         | 278 17                         |                          | 40                         | 289 1                          |
|                          | 62                         | 247 3                          |                          | 9                          | 278 13                         |                          | 39                         | 289 13                         |
|                          | 61                         | 248 12                         |                          | 8                          | 278 10                         | 82                       | 38                         | 290 6                          |
|                          | 60                         | 250 1                          |                          | 7                          | 276 6                          |                          | 36                         | 291 6                          |
|                          | 58                         | 251 10                         |                          | 6                          | 273 10                         |                          | 35                         | 291 14                         |
|                          | 57                         | 254 2                          |                          | 5                          | 269 14                         |                          | 34                         | 292 2                          |
|                          | 56                         | 255 4                          |                          | 4                          | 266 15                         |                          | 33                         | 292 10                         |
|                          | 55                         | 256 6                          |                          | 3                          | 259 12                         |                          | 31                         | 293 4                          |
|                          | 54                         | 257 8                          |                          | 2                          | 249 8                          |                          | 30                         | 293 11                         |
|                          | 52                         | 259 9                          |                          | 1                          | 219 8                          |                          | 29                         | 293 17                         |
|                          | 51                         | 260 8                          | 82                       | 81                         | 176 0                          |                          | 28                         | 294 4                          |
|                          | 50                         | 261 7                          |                          | 80                         | 183 19                         |                          | 26                         | 294 15                         |
|                          | 49                         | 262 6                          |                          | 79                         | 191 17                         |                          | 25                         | 295 0                          |
|                          | 47                         | 263 17                         |                          | 78                         | 199 16                         |                          | 24                         | 295 5                          |
|                          | 46                         | 264 11                         |                          | 76                         | 212 17                         |                          | 23                         | 295 10                         |
|                          | 45                         | 265 4                          |                          | 75                         | 218 0                          |                          | 21                         | 296 7                          |
|                          | 44                         | 265 18                         |                          | 74                         | 223 3                          |                          | 20                         | 296 19                         |
|                          | 42                         | 267 3                          |                          | 73                         | 228 8                          |                          | 19                         | 297 10                         |
|                          | 41                         | 267 14                         |                          | 71                         | 237 7                          |                          | 18                         | 298 2                          |
|                          | 40                         | 268 5                          |                          | 70                         | 241 7                          |                          | 16                         | 299 7                          |
|                          | 39                         | 268 16                         |                          | 69                         | 245 6                          |                          | 15                         | 300 0                          |
|                          | 37                         | 269 15                         |                          | 68                         | 249 6                          |                          | 14                         | 300 13                         |
|                          | 36                         | 270 3                          |                          | 66                         | 255 15                         |                          | 13                         | 301 6                          |
|                          | 35                         | 270 10                         |                          | 65                         | 258 4                          |                          | 11                         | 301 5                          |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                   |                      | £. s.                    |
| 82                 | 10                   | 300 10                   | 81                 | 39                   | 312 4                    | 80                | 67                   | 288 3                    |
|                    | 9                    | 299 15                   |                    | 38                   | 312 17                   |                   | 66                   | 292 6                    |
|                    | 8                    | 299 0                    |                    | 37                   | 313 10                   |                   | 64                   | 299 1                    |
|                    | 7                    | 298 7                    |                    | 35                   | 314 13                   |                   | 63                   | 301 12                   |
|                    | 6                    | 295 5                    |                    | 34                   | 315 2                    |                   | 62                   | 304 3                    |
|                    | 5                    | 291 2                    |                    | 33                   | 315 11                   |                   | 61                   | 306 14                   |
|                    | 4                    | 287 16                   |                    | 32                   | 316 0                    |                   | 59                   | 310 19                   |
|                    | 3                    | 280 0                    |                    | 30                   | 316 15                   |                   | 58                   | 312 14                   |
|                    | 2                    | 268 18                   |                    | 29                   | 317 2                    |                   | 57                   | 314 9                    |
|                    | 1                    | 236 6                    |                    | 28                   | 317 9                    |                   | 56                   | 316 4                    |
| 81                 | 80                   | 194 13                   | 81                 | 27                   | 317 16                   | 80                | 54                   | 319 7                    |
|                    | 79                   | 202 9                    |                    | 25                   | 318 7                    |                   | 53                   | 320 14                   |
|                    | 78                   | 210 4                    |                    | 24                   | 318 13                   |                   | 52                   | 322 1                    |
|                    | 77                   | 218 0                    |                    | 23                   | 318 18                   |                   | 51                   | 323 8                    |
|                    | 75                   | 231 9                    |                    | 22                   | 319 4                    |                   | 49                   | 325 18                   |
|                    | 74                   | 237 3                    |                    | 20                   | 320 6                    |                   | 48                   | 327 3                    |
|                    | 73                   | 242 16                   |                    | 19                   | 321 2                    |                   | 47                   | 328 7                    |
|                    | 72                   | 248 10                   |                    | 18                   | 321 18                   |                   | 46                   | 329 12                   |
|                    | 70                   | 258 5                    |                    | 17                   | 322 14                   |                   | 44                   | 331 12                   |
|                    | 69                   | 262 7                    |                    | 15                   | 324 1                    |                   | 43                   | 332 9                    |
|                    | 68                   | 266 8                    |                    | 14                   | 324 13                   |                   | 42                   | 333 5                    |
|                    | 67                   | 270 10                   |                    | 13                   | 325 4                    |                   | 41                   | 334 2                    |
|                    | 65                   | 277 1                    |                    | 12                   | 325 16                   |                   | 39                   | 335 11                   |
|                    | 64                   | 279 11                   |                    | 10                   | 324 18                   |                   | 38                   | 336 5                    |
|                    | 63                   | 282 0                    |                    | 9                    | 323 8                    |                   | 37                   | 336 18                   |
|                    | 62                   | 284 10                   |                    | 8                    | 321 18                   |                   | 36                   | 337 12                   |
|                    | 60                   | 288 13                   |                    | 7                    | 320 8                    |                   | 34                   | 338 15                   |
|                    | 59                   | 290 6                    |                    | 6                    | 318 18                   |                   | 33                   | 339 4                    |
|                    | 58                   | 291 19                   |                    | 5                    | 314 7                    |                   | 32                   | 339 13                   |
|                    | 57                   | 293 12                   |                    | 4                    | 310 14                   |                   | 31                   | 340 2                    |
|                    | 55                   | 296 11                   |                    | 3                    | 302 2                    |                   | 29                   | 340 19                   |
|                    | 54                   | 297 16                   |                    | 2                    | 289 18                   |                   | 28                   | 341 7                    |
|                    | 53                   | 299 1                    |                    | 1                    | 254 10                   |                   | 27                   | 341 14                   |
|                    | 52                   | 300 6                    | 80                 | 79                   | 214 8                    |                   | 26                   | 342 2                    |
|                    | 50                   | 302 13                   |                    | 78                   | 222 0                    |                   | 24                   | 342 17                   |
|                    | 49                   | 303 16                   |                    | 77                   | 229 12                   |                   | 23                   | 343 4                    |
|                    | 48                   | 304 19                   |                    | 76                   | 237 4                    |                   | 22                   | 343 11                   |
|                    | 47                   | 306 2                    |                    | 74                   | 250 19                   |                   | 21                   | 343 18                   |
|                    | 45                   | 307 19                   |                    | 73                   | 257 3                    |                   | 19                   | 345 5                    |
|                    | 44                   | 308 14                   |                    | 72                   | 263 6                    |                   | 18                   | 346 5                    |
|                    | 43                   | 309 9                    |                    | 71                   | 269 10                   |                   | 17                   | 347 4                    |
|                    | 42                   | 310 4                    |                    | 69                   | 279 17                   |                   | 16                   | 348 4                    |
|                    | 40                   | 311 11                   |                    | 68                   | 284 0                    |                   | 14                   | 349 14                   |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 80                       | 13                         | 350 4                          |                          | 40                         | 358 18                         |                          | 65                         | 332 16                         |
|                          | 12                         | 350 14                         |                          | 38                         | 360 10                         |                          | 64                         | 337 2                          |
|                          | 11                         | 351 4                          |                          | 37                         | 361 4                          |                          | 62                         | 344 2                          |
|                          | 9                          | 351 8                          |                          | 36                         | 361 18                         |                          | 61                         | 346 16                         |
|                          | 8                          | 349 19                         |                          | 35                         | 362 12                         |                          | 60                         | 349 10                         |
|                          | 7                          | 347 2                          |                          | 33                         | 363 16                         |                          | 59                         | 352 4                          |
|                          | 6                          | 343 8                          |                          | 32                         | 364 7                          |                          | 57                         | 356 17                         |
|                          | 5                          | 338 8                          |                          | 31                         | 364 17                         |                          | 56                         | 358 17                         |
|                          | 4                          | 334 7                          |                          | 30                         | 365 8                          |                          | 55                         | 360 16                         |
|                          | 3                          | 324 19                         |                          | 28                         | 366 6                          |                          | 54                         | 362 16                         |
| 79                       | 2                          | 311 13                         | 79                       | 27                         | 366 14                         | 78                       | 52                         | 366 9                          |
|                          | 1                          | 272 15                         |                          | 26                         | 367 2                          |                          | 51                         | 368 2                          |
|                          | 78                         | 231 17                         |                          | 25                         | 367 10                         |                          | 50                         | 369 15                         |
|                          | 77                         | 242 12                         |                          | 23                         | 368 8                          |                          | 49                         | 371 8                          |
|                          | 76                         | 250 7                          |                          | 22                         | 368 18                         |                          | 47                         | 374 7                          |
|                          | 75                         | 258 2                          |                          | 21                         | 369 8                          |                          | 46                         | 375 12                         |
|                          | 73                         | 272 6                          |                          | 20                         | 369 18                         |                          | 45                         | 376 17                         |
|                          | 72                         | 278 14                         |                          | 18                         | 371 10                         |                          | 44                         | 378 2                          |
|                          | 71                         | 285 2                          |                          | 17                         | 372 12                         |                          | 42                         | 380 8                          |
|                          | 70                         | 291 10                         |                          | 16                         | 373 14                         |                          | 41                         | 381 8                          |
|                          | 68                         | 302 3                          |                          | 15                         | 374 16                         |                          | 40                         | 382 8                          |
|                          | 67                         | 306 8                          |                          | 13                         | 376 4                          |                          | 39                         | 383 8                          |
|                          | 66                         | 310 13                         |                          | 12                         | 376 11                         |                          | 37                         | 385 3                          |
|                          | 65                         | 314 18                         |                          | 11                         | 376 17                         |                          | 36                         | 385 18                         |
|                          | 63                         | 321 16                         |                          | 10                         | 377 3                          |                          | 35                         | 386 13                         |
|                          | 62                         | 324 8                          |                          | 8                          | 375 19                         |                          | 34                         | 387 8                          |
|                          | 61                         | 327 0                          |                          | 7                          | 372 18                         |                          | 32                         | 388 13                         |
|                          | 60                         | 329 12                         |                          | 6                          | 368 17                         |                          | 31                         | 389 4                          |
|                          | 58                         | 334 1                          |                          | 5                          | 363 9                          |                          | 30                         | 389 15                         |
|                          | 57                         | 335 19                         |                          | 4                          | 358 18                         |                          | 29                         | 390 6                          |
| 78                       | 56                         | 337 14                         |                          | 3                          | 348 14                         |                          | 27                         | 391 5                          |
|                          | 55                         | 339 12                         |                          | 2                          | 333 12                         |                          | 26                         | 391 14                         |
|                          | 53                         | 343 1                          |                          | 1                          | 292 14                         |                          | 25                         | 392 3                          |
|                          | 52                         | 344 11                         |                          |                            |                                |                          | 24                         | 392 12                         |
|                          | 51                         | 346 0                          |                          | 77                         | 254 19                         |                          | 22                         | 393 13                         |
|                          | 50                         | 347 10                         |                          | 76                         | 262 19                         |                          | 21                         | 394 7                          |
|                          | 48                         | 350 5                          |                          | 75                         | 270 18                         |                          | 20                         | 395 0                          |
|                          | 47                         | 351 10                         |                          | 74                         | 278 18                         |                          | 19                         | 395 14                         |
|                          | 46                         | 352 15                         |                          | 72                         | 293 10                         |                          | 17                         | 397 11                         |
|                          | 45                         | 354 0                          |                          | 71                         | 300 2                          |                          | 16                         | 398 14                         |
|                          | 43                         | 356 2                          |                          | 70                         | 306 14                         |                          | 15                         | 399 17                         |
|                          | 42                         | 357 1                          |                          | 69                         | 313 6                          |                          | 14                         | 401 0                          |
|                          | 41                         | 357 19                         |                          | 67                         | 324 4                          |                          | 12                         | 402 1                          |
|                          |                            |                                |                          | 66                         | 328 10                         |                          |                            |                                |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 78                       | 11                         | 401 19                         | 77                       | 35                         | 408 16                         | 76                       | 58                         | 390 16                         |
|                          | 10                         | 401 16                         |                          | 34                         | 409 11                         |                          | 57                         | 393 14                         |
|                          | 9                          | 401 14                         |                          | 33                         | 410 6                          |                          | 55                         | 398 15                         |
|                          | 7                          | 398 8                          |                          | 31                         | 411 13                         |                          | 54                         | 400 18                         |
|                          | 6                          | 394 1                          |                          | 30                         | 412 5                          |                          | 53                         | 403 1                          |
|                          | 5                          | 388 2                          |                          | 29                         | 412 16                         |                          | 52                         | 405 4                          |
|                          | 4                          | 383 3                          |                          | 28                         | 413 8                          |                          | 50                         | 409 7                          |
|                          | 3                          | 372 1                          |                          | 26                         | 414 9                          |                          | 49                         | 411 6                          |
|                          | 2                          | 356 11                         |                          | 25                         | 414 19                         |                          | 48                         | 413 5                          |
|                          | 1                          | 311 8                          |                          | 24                         | 415 8                          |                          | 47                         | 415 4                          |
| 77                       | 76                         | 273 17                         | 76                       | 23                         | 415 18                         | 75                       | 45                         | 418 9                          |
|                          | 75                         | 282 3                          |                          | 21                         | 417 6                          |                          | 44                         | 419 16                         |
|                          | 74                         | 290 8                          |                          | 20                         | 418 5                          |                          | 43                         | 421 3                          |
|                          | 73                         | 298 14                         |                          | 19                         | 419 3                          |                          | 42                         | 422 10                         |
|                          | 71                         | 313 14                         |                          | 18                         | 420 2                          |                          | 40                         | 424 19                         |
|                          | 70                         | 320 8                          |                          | 16                         | 422 3                          |                          | 39                         | 426 2                          |
|                          | 69                         | 327 2                          |                          | 15                         | 423 6                          |                          | 38                         | 427 5                          |
|                          | 68                         | 333 16                         |                          | 14                         | 424 9                          |                          | 37                         | 428 8                          |
|                          | 66                         | 344 16                         |                          | 13                         | 425 13                         |                          | 35                         | 430 6                          |
|                          | 65                         | 349 3                          |                          | 11                         | 425 17                         |                          | 34                         | 431 2                          |
|                          | 64                         | 353 9                          |                          | 10                         | 424 19                         |                          | 33                         | 431 18                         |
|                          | 63                         | 357 16                         |                          | 9                          | 424 1                          |                          | 32                         | 432 14                         |
|                          | 61                         | 364 18                         |                          | 8                          | 423 2                          |                          | 30                         | 434 2                          |
|                          | 60                         | 367 14                         |                          | 6                          | 417 11                         |                          | 29                         | 434 14                         |
|                          | 59                         | 370 10                         |                          | 5                          | 411 4                          |                          | 28                         | 435 6                          |
|                          | 58                         | 373 6                          |                          | 4                          | 405 16                         |                          | 27                         | 435 18                         |
|                          | 56                         | 378 3                          |                          | 3                          | 393 18                         |                          | 25                         | 437 0                          |
|                          | 55                         | 380 4                          |                          | 2                          | 376 19                         |                          | 24                         | 437 11                         |
|                          | 54                         | 382 5                          |                          | 1                          | 329 13                         |                          | 23                         | 438 1                          |
|                          | 53                         | 384 6                          | 76                       | 75                         | 292 1                          |                          | 22                         | 438 12                         |
|                          | 51                         | 388 4                          |                          | 74                         | 300 16                         |                          | 20                         | 440 6                          |
|                          | 50                         | 390 0                          |                          | 73                         | 309 11                         |                          | 19                         | 441 11                         |
|                          | 49                         | 391 16                         |                          | 72                         | 318 6                          |                          | 18                         | 442 15                         |
|                          | 48                         | 393 12                         |                          | 70                         | 333 14                         |                          | 17                         | 444 0                          |
|                          | 46                         | 396 14                         |                          | 69                         | 340 9                          |                          | 15                         | 445 18                         |
|                          | 45                         | 398 0                          |                          | 68                         | 347 3                          |                          | 14                         | 446 12                         |
|                          | 44                         | 399 6                          |                          | 67                         | 353 18                         |                          | 13                         | 447 6                          |
|                          | 43                         | 400 12                         |                          | 65                         | 364 18                         |                          | 12                         | 448 0                          |
|                          | 41                         | 402 19                         |                          | 64                         | 369 4                          |                          | 10                         | 447 0                          |
|                          | 40                         | 404 1                          |                          | 63                         | 373 10                         |                          | 9                          | 445 7                          |
|                          | 39                         | 405 2                          |                          | 62                         | 377 16                         |                          | 8                          | 443 13                         |
|                          | 38                         | 406 4                          |                          | 60                         | 385 0                          |                          | 7                          | 442 0                          |
|                          | 36                         | 408 1                          |                          | 59                         | 387 18                         |                          | 5                          | 432 4                          |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                    |
| 76                 | 4                    | 427 2                    |                    | 26                   | 458 6                    |                    | 46                   | 457 4                    |
|                    | 3                    | 415 14                   |                    | 24                   | 459 10                   |                    | 45                   | 459 4                    |
|                    | 2                    | 397 16                   |                    | 23                   | 460 2                    |                    | 43                   | 462 17                   |
|                    | 1                    | 346 12                   |                    | 22                   | 460 14                   |                    | 42                   | 464 8                    |
| 75                 | 74                   | 310 12                   | 75                 | 21                   | 461 6                    | 74                 | 41                   | 465 19                   |
|                    | 73                   | 319 15                   |                    | 19                   | 463 8                    |                    | 40                   | 467 10                   |
|                    | 72                   | 328 17                   |                    | 18                   | 464 19                   |                    | 38                   | 470 3                    |
|                    | 71                   | 338 0                    |                    | 17                   | 466 9                    |                    | 37                   | 471 7                    |
|                    | 69                   | 353 16                   |                    | 16                   | 468 0                    |                    | 36                   | 472 10                   |
|                    | 68                   | 360 10                   |                    | 14                   | 470 2                    |                    | 35                   | 473 14                   |
|                    | 67                   | 367 4                    |                    | 13                   | 470 14                   |                    | 33                   | 475 15                   |
|                    | 66                   | 373 18                   |                    | 12                   | 471 6                    |                    | 32                   | 476 12                   |
|                    | 64                   | 384 18                   |                    | 11                   | 471 18                   |                    | 31                   | 477 9                    |
|                    | 63                   | 389 4                    |                    | 9                    | 469 3                    |                    | 30                   | 478 6                    |
|                    | 62                   | 393 10                   |                    | 8                    | 465 16                   |                    | 28                   | 479 18                   |
|                    | 61                   | 397 16                   |                    | 7                    | 462 9                    |                    | 27                   | 480 12                   |
|                    | 59                   | 405 2                    |                    | 6                    | 459 2                    |                    | 26                   | 481 6                    |
|                    | 58                   | 408 2                    |                    | 4                    | 449 18                   |                    | 25                   | 482 0                    |
|                    | 57                   | 411 2                    |                    | 3                    | 437 12                   |                    | 23                   | 483 9                    |
|                    | 56                   | 414 2                    |                    | 2                    | 418 14                   |                    | 22                   | 484 5                    |
|                    | 54                   | 419 7                    |                    | 1                    | 364 18                   |                    | 21                   | 485 0                    |
|                    | 53                   | 421 13                   | 74                 | 73                   | 330 11                   |                    | 20                   | 485 16                   |
|                    | 52                   | 423 18                   |                    | 72                   | 340 0                    |                    | 18                   | 488 5                    |
|                    | 51                   | 426 4                    |                    | 71                   | 349 9                    |                    | 17                   | 489 19                   |
|                    | 49                   | 430 10                   |                    | 70                   | 358 18                   |                    | 16                   | 491 12                   |
|                    | 48                   | 432 11                   |                    | 68                   | 375 0                    |                    | 15                   | 493 6                    |
|                    | 47                   | 434 11                   |                    | 67                   | 381 15                   |                    | 13                   | 495 7                    |
|                    | 46                   | 436 12                   |                    | 66                   | 388 9                    |                    | 12                   | 495 15                   |
|                    | 44                   | 440 0                    |                    | 65                   | 395 4                    |                    | 11                   | 496 2                    |
|                    | 43                   | 441 9                    |                    | 63                   | 406 4                    |                    | 10                   | 496 10                   |
|                    | 42                   | 442 17                   |                    | 62                   | 410 10                   |                    | 8                    | 496 12                   |
|                    | 41                   | 444 6                    |                    | 61                   | 414 16                   |                    | 7                    | 494 0                    |
|                    | 39                   | 446 17                   |                    | 60                   | 419 2                    |                    | 6                    | 487 14                   |
|                    | 38                   | 448 1                    |                    | 58                   | 426 10                   |                    | 5                    | 479 18                   |
|                    | 37                   | 449 4                    |                    | 57                   | 429 12                   |                    | 3                    | 459 6                    |
|                    | 36                   | 450 9                    |                    | 56                   | 432 14                   |                    | 2                    | 439 12                   |
|                    | 34                   | 452 8                    |                    | 55                   | 435 16                   |                    | 1                    | 383 4                    |
|                    | 33                   | 453 5                    |                    | 53                   | 441 7                    | 73                 | 72                   | 351 14                   |
|                    | 32                   | 454 1                    |                    | 52                   | 443 16                   |                    | 71                   | 361 6                    |
|                    | 31                   | 454 18                   |                    | 51                   | 446 5                    |                    | 70                   | 370 18                   |
|                    | 29                   | 456 7                    |                    | 50                   | 448 14                   |                    | 69                   | 380 10                   |
|                    | 28                   | 457 0                    |                    | 48                   | 453 3                    |                    | 67                   | 396 16                   |
|                    | 27                   | 457 13                   |                    | 47                   | 455 3                    |                    | 66                   | 403 10                   |

| Age of<br>of<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|-------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                         |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 73                      | 65                         | 410 4                          | 73                       | 11                         | 520 18                         | 72                       | 29                         | 526 9                          |
|                         | 64                         | 416 18                         |                          | 10                         | 520 15                         |                          | 28                         | 527 8                          |
|                         | 62                         | 427 19                         |                          | 9                          | 520 12                         |                          | 26                         | 529 1                          |
|                         | 61                         | 432 7                          |                          | 7                          | 517 18                         |                          | 25                         | 529 16                         |
|                         | 60                         | 436 14                         |                          | 6                          | 512 16                         |                          | 24                         | 530 11                         |
|                         | 59                         | 441 2                          |                          | 5                          | 504 2                          |                          | 23                         | 531 6                          |
|                         | 57                         | 448 13                         |                          | 4                          | 496 12                         |                          | 21                         | 533 9                          |
|                         | 56                         | 451 17                         |                          | 2                          | 460 10                         |                          | 20                         | 534 16                         |
|                         | 55                         | 455 0                          |                          | 1                          | 401 10                         |                          | 19                         | 536 3                          |
|                         | 54                         | 458 4                          | 72                       | 71                         | 373 12                         |                          | 18                         | 537 10                         |
|                         | 52                         | 461 1                          |                          | 70                         | 383 6                          |                          | 16                         | 540 13                         |
|                         | 51                         | 466 14                         |                          | 69                         | 393 0                          |                          | 15                         | 542 9                          |
|                         | 50                         | 469 7                          |                          | 68                         | 402 14                         |                          | 14                         | 544 4                          |
|                         | 49                         | 472 0                          |                          | 66                         | 419 1                          |                          | 13                         | 546 0                          |
|                         | 47                         | 476 13                         |                          | 65                         | 425 15                         |                          | 11                         | 546 12                         |
|                         | 46                         | 478 14                         |                          | 64                         | 432 8                          |                          | 10                         | 548 8                          |
|                         | 45                         | 480 15                         |                          | 63                         | 439 2                          |                          | 9                          | 544 4                          |
|                         | 44                         | 482 16                         |                          | 61                         | 450 4                          |                          | 8                          | 543 0                          |
|                         | 42                         | 486 9                          |                          | 60                         | 454 13                         |                          | 6                          | 534 18                         |
|                         | 41                         | 488 2                          |                          | 59                         | 459 1                          |                          | 5                          | 528 8                          |
|                         | 40                         | 489 15                         |                          | 58                         | 463 10                         |                          | 4                          | 520 12                         |
|                         | 39                         | 491 8                          |                          | 56                         | 471 4                          |                          | 3                          | 504 4                          |
|                         | 37                         | 494 4                          |                          | 55                         | 474 11                         |                          | 1                          | 419 14                         |
|                         | 36                         | 495 9                          |                          | 54                         | 477 17                         | 71                       | 70                         | 395 19                         |
|                         | 35                         | 496 13                         |                          | 53                         | 481 4                          |                          | 69                         | 405 14                         |
|                         | 34                         | 497 18                         |                          | 51                         | 487 5                          |                          | 68                         | 415 9                          |
|                         | 32                         | 500 0                          |                          | 50                         | 490 0                          |                          | 67                         | 425 4                          |
|                         | 31                         | 500 18                         |                          | 49                         | 492 15                         |                          | 65                         | 441 10                         |
|                         | 30                         | 501 16                         |                          | 48                         | 495 10                         |                          | 64                         | 443 2                          |
|                         | 29                         | 502 14                         |                          | 46                         | 500 7                          |                          | 63                         | 454 14                         |
|                         | 27                         | 504 6                          |                          | 45                         | 502 9                          |                          | 62                         | 461 6                          |
|                         | 26                         | 505 1                          |                          | 44                         | 504 10                         |                          | 60                         | 472 8                          |
|                         | 25                         | 505 15                         |                          | 43                         | 506 12                         |                          | 59                         | 476 19                         |
|                         | 24                         | 506 10                         |                          | 41                         | 510 9                          |                          | 58                         | 481 9                          |
|                         | 22                         | 508 4                          |                          | 40                         | 512 4                          |                          | 57                         | 486 0                          |
|                         | 21                         | 509 5                          |                          | 39                         | 513 19                         |                          | 55                         | 493 17                         |
|                         | 20                         | 510 5                          |                          | 38                         | 515 14                         |                          | 54                         | 497 5                          |
|                         | 19                         | 511 6                          |                          | 36                         | 518 13                         |                          | 53                         | 500 12                         |
|                         | 17                         | 514 1                          |                          | 35                         | 519 18                         |                          | 52                         | 504 0                          |
|                         | 16                         | 516 17                         |                          | 34                         | 521 3                          |                          | 50                         | 510 7                          |
|                         | 15                         | 517 12                         |                          | 33                         | 522 8                          |                          | 49                         | 513 6                          |
|                         | 14                         | 519 8                          |                          | 31                         | 524 11                         |                          | 48                         | 516 5                          |
|                         | 12                         | 521 1                          |                          | 30                         | 525 10                         |                          | 47                         | 519 4                          |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                    |
| 71                 | 45                   | 524 7                    | 70                 | 61                   | 483 10                   | 70                 | 7                    | 592 8                    |
|                    | 44                   | 526 10                   |                    | 59                   | 494 13                   |                    | 6                    | 584 18                   |
|                    | 43                   | 528 13                   |                    | 58                   | 499 6                    |                    | 4                    | 568 8                    |
|                    | 42                   | 530 16                   |                    | 57                   | 503 19                   |                    | 3                    | 550 6                    |
|                    | 40                   | 534 14                   |                    | 56                   | 508 12                   |                    | 2                    | 525 14                   |
|                    | 39                   | 536 10                   |                    | 54                   | 516 13                   |                    | 1                    | 457 12                   |
|                    | 38                   | 538 6                    |                    | 53                   | 520 3                    | 69                 | 68                   | 140 18                   |
|                    | 37                   | 540 2                    |                    | 52                   | 523 12                   |                    | 67                   | 450 13                   |
|                    | 35                   | 543 3                    |                    | 51                   | 527 2                    |                    | 66                   | 460 7                    |
|                    | 34                   | 544 9                    |                    | 49                   | 533 13                   |                    | 65                   | 470 2                    |
|                    | 33                   | 545 14                   |                    | 48                   | 536 15                   |                    | 63                   | 486 5                    |
|                    | 32                   | 547 0                    |                    | 47                   | 539 16                   |                    | 62                   | 492 14                   |
|                    | 30                   | 549 5                    |                    | 46                   | 542 18                   |                    | 61                   | 499 3                    |
|                    | 29                   | 550 5                    |                    | 44                   | 548 4                    |                    | 60                   | 505 12                   |
|                    | 28                   | 551 4                    |                    | 43                   | 550 9                    |                    | 58                   | 516 16                   |
|                    | 27                   | 552 4                    |                    | 42                   | 552 13                   |                    | 57                   | 521 11                   |
|                    | 25                   | 554 0                    |                    | 41                   | 554 18                   |                    | 56                   | 526 5                    |
|                    | 24                   | 554 16                   |                    | 39                   | 558 19                   |                    | 55                   | 531 0                    |
|                    | 23                   | 555 12                   |                    | 38                   | 560 16                   |                    | 53                   | 539 7                    |
|                    | 22                   | 556 8                    |                    | 37                   | 562 13                   |                    | 52                   | 543 1                    |
|                    | 20                   | 558 19                   |                    | 36                   | 564 10                   |                    | 51                   | 546 14                   |
|                    | 19                   | 560 14                   |                    | 34                   | 567 12                   |                    | 50                   | 550 8                    |
|                    | 18                   | 562 9                    |                    | 33                   | 568 19                   |                    | 48                   | 557 4                    |
|                    | 17                   | 564 4                    |                    | 32                   | 570 5                    |                    | 47                   | 560 6                    |
|                    | 15                   | 567 13                   |                    | 31                   | 571 12                   |                    | 46                   | 563 8                    |
|                    | 14                   | 569 7                    |                    | 29                   | 573 18                   |                    | 45                   | 566 10                   |
|                    | 13                   | 571 0                    |                    | 28                   | 574 19                   |                    | 43                   | 571 19                   |
|                    | 12                   | 572 14                   |                    | 27                   | 575 19                   |                    | 42                   | 574 6                    |
|                    | 10                   | 571 14                   |                    | 26                   | 577 0                    |                    | 41                   | 576 13                   |
|                    | 9                    | 569 1                    |                    | 24                   | 578 18                   |                    | 40                   | 579 0                    |
|                    | 8                    | 566 7                    |                    | 23                   | 589 17                   |                    | 38                   | 583 3                    |
|                    | 7                    | 563 13                   |                    | 22                   | 580 15                   |                    | 37                   | 585 0                    |
|                    | 5                    | 552 12                   |                    | 21                   | 581 14                   |                    | 36                   | 586 17                   |
|                    | 4                    | 544 10                   |                    | 19                   | 584 15                   |                    | 35                   | 588 14                   |
|                    | 3                    | 527 6                    |                    | 18                   | 586 18                   |                    | 33                   | 591 19                   |
|                    | 2                    | 503 0                    |                    | 17                   | 589 1                    |                    | 32                   | 593 6                    |
| 70                 | 69                   | 418 8                    | 70                 | 16                   | 591 4                    |                    | 31                   | 594 13                   |
|                    | 68                   | 428 3                    |                    | 14                   | 594 16                   |                    | 30                   | 596 0                    |
|                    | 67                   | 437 17                   |                    | 13                   | 596 6                    |                    | 28                   | 598 7                    |
|                    | 66                   | 447 12                   |                    | 12                   | 597 16                   |                    | 27                   | 599 9                    |
|                    | 64                   | 463 17                   |                    | 11                   | 599 6                    |                    | 26                   | 600 10                   |
|                    | 63                   | 470 8                    |                    | 9                    | 596 16                   |                    | 25                   | 601 12                   |
|                    | 62                   | 476 19                   |                    | 8                    | 597 12                   |                    | 23                   | 603 17                   |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities | Age of the Eldest. | Ages of the Youngest | Values of the Annuities |
|--------------------|----------------------|--------------------------|--------------------|----------------------|-------------------------|--------------------|----------------------|-------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                   |                    |                      | £. s.                   |
| 69                 | 22                   | 605 0                    | 68                 | 36                   | 608 19                  | 67                 | 49                   | 592 5                   |
|                    | 21                   | 606 3                    |                    | 35                   | 610 16                  |                    | 48                   | 596 6                   |
|                    | 20                   | 607 6                    |                    | 34                   | 612 14                  |                    | 46                   | 603 10                  |
|                    | 18                   | 610 15                   |                    | 32                   | 615 19                  |                    | 45                   | 606 12                  |
|                    | 17                   | 613 2                    |                    | 31                   | 617 7                   |                    | 44                   | 609 14                  |
|                    | 16                   | 615 9                    |                    | 30                   | 618 14                  |                    | 43                   | 612 16                  |
|                    | 15                   | 617 16                   |                    | 29                   | 620 2                   |                    | 41                   | 618 9                   |
|                    | 13                   | 621 8                    |                    | 27                   | 622 12                  |                    | 40                   | 621 1                   |
|                    | 12                   | 622 12                   |                    | 26                   | 623 15                  |                    | 39                   | 623 12                  |
|                    | 11                   | 623 16                   |                    | 25                   | 624 17                  |                    | 38                   | 626 4                   |
|                    | 10                   | 625 0                    |                    | 24                   | 626 0                   |                    | 36                   | 630 13                  |
|                    | 8                    | 623 6                    |                    | 22                   | 628 11                  |                    | 35                   | 632 11                  |
|                    | 7                    | 617 16                   |                    | 21                   | 630 0                   |                    | 34                   | 634 8                   |
|                    | 6                    | 610 8                    |                    | 20                   | 631 9                   |                    | 33                   | 636 6                   |
|                    | 5                    | 600 14                   |                    | 19                   | 632 18                  |                    | 31                   | 639 13                  |
| 68                 | 3                    | 573 8                    | 67                 | 17                   | 636 16                  | 66                 | 30                   | 641 2                   |
|                    | 2                    | 546 6                    |                    | 16                   | 639 6                   |                    | 29                   | 642 11                  |
|                    | 1                    | 464 16                   |                    | 15                   | 641 16                  |                    | 28                   | 644 0                   |
|                    | 67                   | 463 6                    |                    | 14                   | 644 6                   |                    | 26                   | 646 11                  |
|                    | 66                   | 472 18                   |                    | 12                   | 647 5                   |                    | 25                   | 647 14                  |
|                    | 65                   | 482 10                   |                    | 11                   | 647 14                  |                    | 24                   | 648 17                  |
|                    | 64                   | 492 2                    |                    | 10                   | 648 3                   |                    | 23                   | 650 0                   |
|                    | 62                   | 508 3                    |                    | 9                    | 648 12                  |                    | 21                   | 653 1                   |
|                    | 61                   | 514 13                   |                    | 7                    | 653 2                   |                    | 20                   | 654 18                  |
|                    | 60                   | 521 2                    |                    | 6                    | 635 4                   |                    | 19                   | 656 15                  |
|                    | 59                   | 527 12                   |                    | 5                    | 624 12                  |                    | 18                   | 658 12                  |
|                    | 57                   | 538 17                   |                    | 4                    | 615 8                   |                    | 16                   | 662 18                  |
|                    | 56                   | 543 13                   |                    | 2                    | 568 0                   |                    | 15                   | 665 9                   |
|                    | 55                   | 548 8                    |                    | 1                    | 493 2                   |                    | 14                   | 667 19                  |
|                    | 54                   | 553 4                    |                    | 66                   | 486 10                  |                    | 13                   | 670 10                  |
|                    | 52                   | 561 17                   |                    | 65                   | 497 0                   |                    | 11                   | 672 1                   |
|                    | 51                   | 565 15                   |                    | 64                   | 507 10                  |                    | 10                   | 671 3                   |
|                    | 50                   | 569 12                   |                    | 63                   | 518 0                   |                    | 9                    | 670 4                   |
|                    | 49                   | 573 10                   |                    | 61                   | 533 19                  |                    | 8                    | 669 6                   |
|                    | 47                   | 580 10                   |                    | 60                   | 539 9                   |                    | 6                    | 659 18                  |
|                    | 46                   | 583 12                   |                    | 59                   | 544 18                  |                    | 5                    | 648 10                  |
|                    | 45                   | 586 14                   |                    | 58                   | 550 8                   |                    | 4                    | 638 10                  |
|                    | 44                   | 589 16                   |                    | 56                   | 560 14                  |                    | 3                    | 618 4                   |
|                    | 42                   | 595 7                    |                    | 55                   | 565 11                  |                    | 1                    | 511 4                   |
| 68                 | 41                   | 597 16                   | 67                 | 54                   | 570 7                   | 66                 | 65                   | 507 10                  |
|                    | 40                   | 600 5                    |                    | 53                   | 575 4                   |                    | 64                   | 516 16                  |
|                    | 39                   | 602 14                   |                    | 51                   | 584 3                   |                    | 63                   | 526 2                   |
|                    | 37                   | 607 1                    |                    | 50                   | 588 4                   |                    | 62                   | 535 8                   |

| Age of the Eldest. | Ages of the Youngest. | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest. | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest. | Values of the Annuities. |
|--------------------|-----------------------|--------------------------|--------------------|-----------------------|--------------------------|--------------------|-----------------------|--------------------------|
|                    |                       | £. s.                    |                    |                       | £. s.                    |                    |                       | £. s.                    |
| 66                 | 60                    | 551 5                    | 66                 | 7                     | 687 8                    | 65                 | 17                    | 707 1                    |
|                    | 59                    | 557 16                   |                    | 5                     | 672 8                    |                    | 16                    | 709 18                   |
|                    | 58                    | 564 7                    |                    | 4                     | 661 10                   |                    | 14                    | 714 17                   |
|                    | 57                    | 570 18                   |                    | 3                     | 639 16                   |                    | 13                    | 717 1                    |
|                    | 55                    | 582 6                    |                    | 2                     | 609 12                   |                    | 12                    | 719 4                    |
|                    | 54                    | 587 4                    | 65                 | 64                    | 529 5                    |                    | 11                    | 721 8                    |
|                    | 53                    | 592 2                    |                    | 63                    | 538 8                    |                    | 9                     | 722 16                   |
|                    | 52                    | 597 0                    |                    | 62                    | 547 11                   |                    | 8                     | 719 14                   |
|                    | 50                    | 606 2                    |                    | 61                    | 556 14                   |                    | 7                     | 714 4                    |
|                    | 49                    | 610 7                    |                    | 59                    | 572 7                    |                    | 6                     | 706 12                   |
|                    | 48                    | 614 11                   |                    | 58                    | 578 18                   |                    | 4                     | 684 12                   |
|                    | 47                    | 618 16                   |                    | 57                    | 585 9                    |                    | 3                     | 661 10                   |
|                    | 45                    | 626 3                    |                    | 56                    | 592 0                    |                    | 2                     | 629 10                   |
|                    | 44                    | 629 6                    |                    | 54                    | 603 12                   |                    | 1                     | 546 2                    |
|                    | 43                    | 632 9                    |                    | 53                    | 608 12                   | 64                 | 63                    | 550 14                   |
|                    | 42                    | 635 12                   |                    | 52                    | 613 12                   |                    | 62                    | 559 14                   |
|                    | 40                    | 641 9                    |                    | 51                    | 618 12                   |                    | 61                    | 568 14                   |
|                    | 39                    | 644 2                    |                    | 49                    | 627 19                   |                    | 60                    | 577 14                   |
|                    | 38                    | 646 15                   |                    | 48                    | 632 6                    |                    | 58                    | 593 5                    |
|                    | 37                    | 649 8                    |                    | 47                    | 636 13                   |                    | 57                    | 599 17                   |
|                    | 35                    | 653 18                   |                    | 46                    | 641 0                    |                    | 56                    | 606 8                    |
|                    | 34                    | 655 16                   |                    | 44                    | 643 12                   |                    | 55                    | 613 0                    |
|                    | 33                    | 657 14                   |                    | 43                    | 651 17                   |                    | 53                    | 624 15                   |
|                    | 32                    | 659 12                   |                    | 42                    | 655 1                    |                    | 52                    | 629 18                   |
|                    | 30                    | 662 19                   |                    | 41                    | 658 6                    |                    | 51                    | 635 1                    |
|                    | 29                    | 664 9                    |                    | 39                    | 664 1                    |                    | 50                    | 640 4                    |
|                    | 28                    | 665 18                   |                    | 38                    | 666 14                   |                    | 48                    | 649 15                   |
|                    | 27                    | 667 8                    |                    | 37                    | 669 7                    |                    | 47                    | 654 2                    |
|                    | 25                    | 670 2                    |                    | 36                    | 672 0                    |                    | 46                    | 658 9                    |
|                    | 24                    | 671 6                    |                    | 34                    | 676 13                   |                    | 45                    | 662 16                   |
|                    | 23                    | 672 10                   |                    | 33                    | 678 12                   |                    | 43                    | 670 9                    |
|                    | 22                    | 673 14                   |                    | 32                    | 680 11                   |                    | 42                    | 673 16                   |
|                    | 20                    | 677 5                    |                    | 31                    | 682 10                   |                    | 41                    | 677 3                    |
|                    | 19                    | 679 12                   |                    | 29                    | 685 18                   |                    | 40                    | 680 10                   |
|                    | 18                    | 681 19                   |                    | 28                    | 687 9                    |                    | 38                    | 686 9                    |
|                    | 17                    | 684 6                    |                    | 27                    | 688 19                   |                    | 37                    | 689 2                    |
|                    | 15                    | 689 0                    |                    | 26                    | 690 10                   |                    | 36                    | 691 15                   |
|                    | 14                    | 691 9                    |                    | 24                    | 693 6                    |                    | 35                    | 694 8                    |
|                    | 13                    | 693 17                   |                    | 23                    | 694 13                   |                    | 33                    | 699 1                    |
|                    | 12                    | 696 6                    |                    | 22                    | 695 19                   |                    | 32                    | 701 0                    |
|                    | 10                    | 695 17                   |                    | 21                    | 697 6                    |                    | 31                    | 702 19                   |
|                    | 9                     | 693 1                    |                    | 19                    | 701 8                    |                    | 30                    | 704 18                   |
|                    | 8                     | 690 4                    |                    | 18                    | 704 5                    |                    | 28                    | 708 9                    |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                         |                            | £. s.                          |                          |                            | £. s.                          |
| 64                       | 27                         | 710 0                          | 63                      | 36                         | 710 12                         | 62                       | 44                         | 700 5                          |
|                          | 26                         | 711 11                         |                         | 35                         | 713 5                          |                          | 43                         | 704 10                         |
|                          | 25                         | 713 2                          |                         | 34                         | 715 18                         |                          | 41                         | 712 7                          |
|                          | 23                         | 716 5                          |                         | 32                         | 720 12                         |                          | 40                         | 715 18                         |
|                          | 22                         | 717 17                         |                         | 31                         | 722 12                         |                          | 39                         | 719 9                          |
|                          | 21                         | 719 8                          |                         | 30                         | 724 12                         |                          | 38                         | 723 0                          |
|                          | 20                         | 721 0                          |                         | 29                         | 726 12                         |                          | 36                         | 729 3                          |
|                          | 18                         | 725 14                         |                         | 27                         | 730 3                          |                          | 35                         | 731 16                         |
|                          | 17                         | 728 16                         |                         | 26                         | 731 15                         |                          | 34                         | 734 9                          |
|                          | 16                         | 731 18                         |                         | 25                         | 733 6                          |                          | 33                         | 737 2                          |
|                          | 15                         | 735 0                          |                         | 24                         | 734 18                         |                          | 31                         | 741 15                         |
|                          | 13                         | 739 17                         |                         | 22                         | 738 9                          |                          | 30                         | 743 16                         |
|                          | 12                         | 741 13                         |                         | 21                         | 740 8                          |                          | 29                         | 745 17                         |
|                          | 11                         | 743 8                          |                         | 20                         | 742 7                          |                          | 28                         | 747 18                         |
|                          | 10                         | 745 4                          |                         | 19                         | 744 6                          |                          | 26                         | 751 10                         |
|                          | 8                          | 743 6                          |                         | 17                         | 749 9                          |                          | 25                         | 753 3                          |
|                          | 7                          | 737 0                          |                         | 16                         | 752 14                         |                          | 24                         | 754 15                         |
| 63                       | 6                          | 728 10                         | 62                      | 15                         | 755 19                         | 61                       | 23                         | 756 8                          |
|                          | 5                          | 717 6                          |                         | 14                         | 759 4                          |                          | 21                         | 760 8                          |
|                          | 3                          | 683 2                          |                         | 12                         | 763 7                          |                          | 20                         | 762 16                         |
|                          | 2                          | 649 10                         |                         | 11                         | 764 5                          |                          | 19                         | 765 4                          |
|                          | 1                          | 562 12                         |                         | 10                         | 765 2                          |                          | 18                         | 767 12                         |
|                          | 62                         | 571 9                          |                         | 9                          | 766 0                          |                          | 16                         | 773 5                          |
|                          | 61                         | 580 7                          |                         | 7                          | 759 18                         |                          | 15                         | 776 10                         |
|                          | 60                         | 589 4                          |                         | 6                          | 750 10                         |                          | 14                         | 779 15                         |
|                          | 59                         | 598 2                          |                         | 5                          | 738 4                          |                          | 13                         | 783 0                          |
|                          | 57                         | 613 11                         |                         | 4                          | 727 12                         |                          | 11                         | 785 12                         |
|                          | 56                         | 620 3                          |                         | 2                          | 669 8                          |                          | 10                         | 784 18                         |
|                          | 55                         | 626 14                         |                         | 1                          | 579 4                          |                          | 9                          | 784 4                          |
|                          | 54                         | 633 6                          | 62                      | 61                         | 591 17                         |                          | 8                          | 783 10                         |
|                          | 52                         | 645 5                          |                         | 60                         | 600 13                         |                          | 6                          | 772 8                          |
|                          | 51                         | 650 12                         |                         | 59                         | 609 8                          |                          | 5                          | 759 4                          |
|                          | 50                         | 655 19                         |                         | 58                         | 618 4                          |                          | 4                          | 747 12                         |
|                          | 49                         | 661 6                          |                         | 56                         | 633 12                         |                          | 3                          | 723 12                         |
|                          | 47                         | 670 19                         |                         | 55                         | 640 4                          |                          | 1                          | 595 14                         |
|                          | 46                         | 675 5                          |                         | 54                         | 646 16                         | 61                       | 60                         | 611 14                         |
|                          | 45                         | 679 10                         |                         | 53                         | 653 8                          |                          | 59                         | 620 8                          |
|                          | 44                         | 683 16                         |                         | 51                         | 665 10                         |                          | 58                         | 629 2                          |
|                          | 42                         | 691 11                         |                         | 50                         | 671 0                          |                          | 57                         | 637 16                         |
|                          | 41                         | 695 0                          |                         | 49                         | 676 10                         |                          | 55                         | 653 2                          |
|                          | 40                         | 698 9                          |                         | 48                         | 682 0                          |                          | 54                         | 659 14                         |
|                          | 39                         | 701 18                         |                         | 46                         | 691 15                         |                          | 53                         | 666 6                          |
|                          | 37                         | 707 10                         |                         | 45                         | 696 0                          |                          | 52                         | 672 18                         |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                    |
| 61                 | 50                   | 685 2                    | 60                 | 56                   | 657 4                    | 60                 | 2                    | 723 18                   |
|                    | 49                   | 690 15                   |                    | 54                   | 672 10                   |                    | 1                    | 626 14                   |
|                    | 48                   | 696 7                    |                    | 53                   | 679 2                    | 59                 | 58                   | 650 13                   |
|                    | 47                   | 702 0                    |                    | 52                   | 685 14                   |                    | 57                   | 659 5                    |
|                    | 45                   | 711 17                   |                    | 51                   | 692 6                    |                    | 56                   | 667 16                   |
|                    | 44                   | 716 3                    |                    | 49                   | 704 12                   |                    | 55                   | 676 8                    |
|                    | 43                   | 720 8                    |                    | 48                   | 710 6                    |                    | 53                   | 691 14                   |
|                    | 42                   | 724 14                   |                    | 47                   | 716 0                    |                    | 52                   | 698 9                    |
|                    | 40                   | 732 11                   |                    | 46                   | 721 14                   |                    | 51                   | 705 3                    |
|                    | 39                   | 736 3                    |                    | 44                   | 731 14                   |                    | 50                   | 711 18                   |
|                    | 38                   | 739 14                   |                    | 43                   | 736 1                    |                    | 48                   | 724 5                    |
|                    | 37                   | 743 6                    |                    | 42                   | 740 7                    |                    | 47                   | 729 18                   |
|                    | 35                   | 749 11                   |                    | 41                   | 744 14                   |                    | 46                   | 735 11                   |
|                    | 34                   | 752 4                    |                    | 39                   | 752 11                   |                    | 45                   | 741 4                    |
|                    | 33                   | 754 17                   |                    | 38                   | 756 3                    |                    | 43                   | 751 6                    |
|                    | 32                   | 757 10                   |                    | 37                   | 759 14                   |                    | 42                   | 755 14                   |
|                    | 30                   | 762 3                    |                    | 36                   | 763 6                    |                    | 41                   | 760 2                    |
|                    | 29                   | 764 4                    |                    | 34                   | 769 11                   |                    | 40                   | 764 10                   |
|                    | 28                   | 766 5                    |                    | 33                   | 772 4                    |                    | 38                   | 772 9                    |
|                    | 27                   | 768 6                    |                    | 32                   | 774 17                   |                    | 37                   | 776 0                    |
|                    | 25                   | 772 1                    |                    | 31                   | 777 10                   |                    | 36                   | 779 11                   |
|                    | 24                   | 773 14                   |                    | 29                   | 782 5                    |                    | 35                   | 783 2                    |
|                    | 23                   | 775 7                    |                    | 28                   | 784 7                    |                    | 33                   | 789 5                    |
|                    | 22                   | 777 0                    |                    | 27                   | 786 8                    |                    | 32                   | 791 18                   |
|                    | 20                   | 781 13                   |                    | 26                   | 788 10                   |                    | 31                   | 794 11                   |
|                    | 19                   | 784 12                   |                    | 24                   | 792 7                    |                    | 30                   | 797 4                    |
|                    | 18                   | 787 11                   |                    | 23                   | 794 3                    |                    | 28                   | 802 0                    |
|                    | 17                   | 790 10                   |                    | 22                   | 795 18                   |                    | 27                   | 804 2                    |
|                    | 15                   | 796 13                   |                    | 21                   | 797 14                   |                    | 26                   | 806 4                    |
|                    | 14                   | 799 16                   |                    | 19                   | 803 0                    |                    | 25                   | 808 6                    |
|                    | 13                   | 802 19                   |                    | 18                   | 806 10                   |                    | 23                   | 812 9                    |
|                    | 12                   | 806 2                    |                    | 17                   | 810 0                    |                    | 22                   | 814 10                   |
|                    | 10                   | 806 5                    |                    | 16                   | 813 10                   |                    | 21                   | 816 11                   |
|                    | 9                    | 803 6                    |                    | 14                   | 819 17                   |                    | 20                   | 818 12                   |
|                    | 8                    | 800 7                    |                    | 13                   | 822 15                   |                    | 18                   | 824 11                   |
|                    | 7                    | 797 8                    |                    | 12                   | 825 12                   |                    | 17                   | 828 8                    |
|                    | 5                    | 780 2                    |                    | 11                   | 828 10                   |                    | 16                   | 832 5                    |
|                    | 4                    | 767 10                   |                    | 9                    | 830 18                   |                    | 15                   | 836 2                    |
|                    | 3                    | 742 6                    |                    | 8                    | 828 4                    |                    | 13                   | 842 6                    |
|                    | 2                    | 706 12                   |                    | 7                    | 822 8                    |                    | 12                   | 844 14                   |
| 60                 | 59                   | 631 5                    |                    | 6                    | 813 12                   |                    | 11                   | 847 2                    |
|                    | 58                   | 639 18                   |                    | 4                    | 787 10                   |                    | 10                   | 849 10                   |
|                    | 57                   | 648 11                   |                    | 3                    | 761 2                    |                    | 8                    | 848 14                   |

| Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest. | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest. | Values of<br>the<br>Annuities. | Age of<br>the<br>Eldest. | Ages of<br>the<br>Youngest. | Values of<br>the<br>Annuities. |
|--------------------------|-----------------------------|--------------------------------|--------------------------|-----------------------------|--------------------------------|--------------------------|-----------------------------|--------------------------------|
|                          |                             | £. s.                          |                          |                             | £. s.                          |                          |                             | £. s.                          |
| 59                       | 7                           | 842 2                          | 58                       | 11                          | 864 19                         | 57                       | 14                          | 875 18                         |
|                          | 6                           | 832 14                         |                          | 10                          | 866 6                          |                          | 13                          | 879 18                         |
|                          | 5                           | 819 10                         |                          | 9                           | 867 14                         |                          | 11                          | 883 9                          |
|                          | 3                           | 779 16                         |                          | 7                           | 861 18                         |                          | 10                          | 883 0                          |
|                          | 2                           | 741 2                          |                          | 6                           | 851 18                         |                          | 9                           | 882 11                         |
|                          | 1                           | 641 2                          |                          | 5                           | 837 18                         |                          | 8                           | 882 2                          |
| 58                       | 57                          | 669 18                         | 57                       | 4                           | 825 2                          | 56                       | 6                           | 871 0                          |
|                          | 56                          | 678 8                          |                          | 2                           | 758 8                          |                          | 5                           | 856 6                          |
|                          | 55                          | 686 18                         |                          | 1                           | 655 10                         |                          | 4                           | 842 16                         |
|                          | 54                          | 695 8                          |                          | 56                          | 688 18                         |                          | 3                           | 815 4                          |
|                          | 52                          | 710 15                         |                          | 55                          | 697 6                          |                          | 2                           | 775 12                         |
|                          | 51                          | 717 12                         |                          | 54                          | 705 14                         |                          | 1                           | 669 18                         |
|                          | 50                          | 724 9                          |                          | 53                          | 714 2                          |                          | 55                          | 707 12                         |
|                          | 49                          | 731 6                          |                          | 51                          | 729 9                          |                          | 54                          | 715 19                         |
|                          | 47                          | 743 15                         |                          | 50                          | 736 9                          |                          | 53                          | 724 5                          |
|                          | 46                          | 749 6                          |                          | 49                          | 743 8                          |                          | 52                          | 732 12                         |
|                          | 45                          | 754 17                         |                          | 48                          | 750 8                          |                          | 50                          | 747 19                         |
|                          | 44                          | 760 8                          |                          | 46                          | 762 17                         |                          | 49                          | 755 1                          |
|                          | 42                          | 770 9                          |                          | 45                          | 768 7                          |                          | 48                          | 762 2                          |
|                          | 41                          | 774 19                         |                          | 44                          | 773 16                         |                          | 47                          | 769 4                          |
|                          | 40                          | 779 8                          |                          | 43                          | 779 6                          |                          | 45                          | 781 15                         |
|                          | 39                          | 783 18                         |                          | 41                          | 789 7                          |                          | 44                          | 787 4                          |
|                          | 37                          | 791 18                         |                          | 40                          | 793 18                         |                          | 43                          | 792 13                         |
|                          | 36                          | 795 9                          |                          | 39                          | 798 9                          |                          | 42                          | 798 2                          |
|                          | 35                          | 798 19                         |                          | 38                          | 803 0                          |                          | 40                          | 808 1                          |
|                          | 34                          | 802 10                         |                          | 36                          | 811 1                          |                          | 39                          | 812 13                         |
|                          | 32                          | 808 13                         |                          | 35                          | 814 11                         |                          | 38                          | 817 4                          |
|                          | 31                          | 811 6                          |                          | 34                          | 818 0                          |                          | 37                          | 821 16                         |
|                          | 30                          | 813 19                         |                          | 33                          | 821 10                         |                          | 35                          | 829 17                         |
|                          | 29                          | 816 12                         |                          | 31                          | 827 13                         |                          | 34                          | 833 6                          |
|                          | 27                          | 821 8                          |                          | 30                          | 830 6                          |                          | 33                          | 836 15                         |
|                          | 26                          | 823 11                         |                          | 29                          | 832 19                         |                          | 32                          | 840 4                          |
|                          | 25                          | 825 13                         |                          | 28                          | 835 12                         |                          | 30                          | 846 5                          |
|                          | 24                          | 827 16                         |                          | 26                          | 840 9                          |                          | 29                          | 848 19                         |
|                          | 22                          | 832 7                          |                          | 25                          | 842 12                         |                          | 28                          | 851 12                         |
|                          | 21                          | 834 16                         |                          | 24                          | 844 15                         |                          | 27                          | 854 6                          |
|                          | 20                          | 837 5                          |                          | 23                          | 846 18                         |                          | 25                          | 859 3                          |
|                          | 19                          | 839 14                         |                          | 21                          | 852 1                          |                          | 24                          | 861 7                          |
|                          | 17                          | 846 4                          |                          | 20                          | 855 0                          |                          | 23                          | 863 10                         |
|                          | 16                          | 850 4                          |                          | 19                          | 857 19                         |                          | 22                          | 865 14                         |
|                          | 15                          | 854 4                          |                          | 18                          | 860 18                         |                          | 20                          | 871 9                          |
|                          | 14                          | 858 4                          |                          | 16                          | 867 18                         |                          | 19                          | 875 1                          |
|                          | 12                          | 863 11                         |                          | 15                          | 871 18                         |                          | 18                          | 878 12                         |

| Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities. | Age of the Eldest. | Ages of the Youngest | Values of the Annuities |
|--------------------|----------------------|--------------------------|--------------------|----------------------|--------------------------|--------------------|----------------------|-------------------------|
|                    |                      | £. s.                    |                    |                      | £. s.                    |                    |                      | £. s.                   |
| 56                 | 17                   | 882 4                    | 55                 | 17                   | 899 7                    | 54                 | 17                   | 915 8                   |
|                    | 15                   | 889 13                   |                    | 16                   | 903 10                   |                    | 16                   | 919 19                  |
|                    | 14                   | 893 11                   |                    | 14                   | 911 5                    |                    | 15                   | 924 10                  |
|                    | 13                   | 897 8                    |                    | 13                   | 914 17                   |                    | 13                   | 932 1                   |
|                    | 12                   | 901 6                    |                    | 12                   | 918 8                    |                    | 12                   | 935 2                   |
|                    | 10                   | 902 4                    |                    | 11                   | 922 0                    |                    | 11                   | 938 3                   |
|                    | 9                    | 899 4                    |                    | 9                    | 925 14                   |                    | 10                   | 941 4                   |
|                    | 8                    | 896 4                    |                    | 8                    | 923 2                    |                    | 8                    | 941 2                   |
|                    | 7                    | 893 4                    |                    | 7                    | 916 12                   |                    | 7                    | 934 2                   |
|                    | 5                    | 874 14                   |                    | 6                    | 907 2                    |                    | 6                    | 923 18                  |
|                    | 4                    | 860 8                    |                    | 4                    | 878 2                    |                    | 5                    | 909 6                   |
| 55                 | 3                    | 831 16                   | 54                 | 3                    | 848 6                    | 53                 | 3                    | 864 18                  |
|                    | 2                    | 790 18                   |                    | 2                    | 806 4                    |                    | 2                    | 821 8                   |
|                    | 54                   | 726 3                    |                    | 1                    | 697 0                    |                    | 1                    | 709 14                  |
|                    | 53                   | 734 9                    |                    | 53                   | 744 11                   |                    | 52                   | 762 16                  |
|                    | 52                   | 742 14                   |                    | 52                   | 752 18                   |                    | 51                   | 771 5                   |
|                    | 51                   | 751 0                    |                    | 51                   | 761 5                    |                    | 50                   | 779 13                  |
|                    | 49                   | 766 8                    |                    | 50                   | 769 12                   |                    | 49                   | 788 2                   |
|                    | 48                   | 773 10                   |                    | 48                   | 785 0                    |                    | 47                   | 803 7                   |
|                    | 47                   | 780 12                   |                    | 47                   | 792 0                    |                    | 46                   | 810 4                   |
|                    | 46                   | 787 14                   |                    | 46                   | 799 0                    |                    | 45                   | 817 1                   |
|                    | 44                   | 800 5                    |                    | 45                   | 806 0                    |                    | 44                   | 823 18                  |
|                    | 43                   | 805 14                   |                    | 43                   | 818 10                   |                    | 42                   | 836 7                   |
|                    | 42                   | 811 3                    |                    | 42                   | 824 1                    |                    | 41                   | 841 18                  |
|                    | 41                   | 816 12                   |                    | 41                   | 829 11                   |                    | 40                   | 847 9                   |
|                    | 39                   | 826 13                   |                    | 40                   | 835 2                    |                    | 39                   | 853 0                   |
|                    | 38                   | 831 4                    |                    | 38                   | 845 1                    |                    | 37                   | 863 0                   |
|                    | 37                   | 835 15                   |                    | 37                   | 849 10                   |                    | 36                   | 867 8                   |
|                    | 36                   | 840 6                    |                    | 36                   | 853 19                   |                    | 35                   | 871 16                  |
|                    | 34                   | 848 4                    |                    | 35                   | 858 8                    |                    | 34                   | 876 4                   |
|                    | 33                   | 851 13                   |                    | 33                   | 866 6                    |                    | 32                   | 883 19                  |
|                    | 32                   | 855 1                    |                    | 32                   | 869 14                   |                    | 31                   | 887 7                   |
|                    | 31                   | 858 10                   |                    | 31                   | 873 2                    |                    | 30                   | 890 14                  |
|                    | 29                   | 864 12                   |                    | 30                   | 876 10                   |                    | 29                   | 894 2                   |
|                    | 28                   | 867 6                    |                    | 28                   | 882 12                   |                    | 27                   | 900 4                   |
|                    | 27                   | 870 0                    |                    | 27                   | 885 6                    |                    | 26                   | 902 19                  |
|                    | 26                   | 872 14                   |                    | 26                   | 888 0                    |                    | 25                   | 905 13                  |
|                    | 24                   | 877 14                   |                    | 25                   | 890 14                   |                    | 24                   | 908 8                   |
|                    | 23                   | 880 0                    |                    | 23                   | 895 19                   |                    | 22                   | 914 1                   |
|                    | 22                   | 882 6                    |                    | 22                   | 898 11                   |                    | 21                   | 917 1                   |
|                    | 21                   | 884 12                   |                    | 21                   | 901 2                    |                    | 20                   | 920 0                   |
|                    | 19                   | 891 1                    |                    | 20                   | 903 14                   |                    | 19                   | 923 0                   |
|                    | 18                   | 895 4                    |                    | 18                   | 910 17                   |                    | 17                   | 930 15                  |

| Age of<br>the<br>Eld-st. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eld-st. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age of<br>the<br>Eld-st. | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|--------------------------|----------------------------|--------------------------------|
|                          |                            | £. s.                          |                          |                            | £. s.                          |                          |                            | £. s.                          |
| 53                       | 16                         | 935 10                         | 52                       | 14                         | 960 7                          | 51                       | 10                         | 986 8                          |
|                          | 15                         | 940 5                          |                          | 13                         | 965 2                          |                          | 9                          | 983 9                          |
|                          | 14                         | 945 0                          |                          | 11                         | 969 13                         |                          | 8                          | 980 9                          |
|                          | 12                         | 951 11                         |                          | 10                         | 969 10                         |                          | 7                          | 977 10                         |
|                          | 11                         | 953 9                          |                          | 9                          | 969 7                          |                          | 5                          | 958 0                          |
|                          | 10                         | 955 6                          |                          | 8                          | 969 4                          |                          | 4                          | 942 18                         |
|                          | 9                          | 957 4                          |                          | 6                          | 957 12                         |                          | 3                          | 911 10                         |
|                          | 7                          | 951 10                         |                          | 5                          | 941 16                         |                          | 2                          | 866 0                          |
|                          | 6                          | 940 16                         |                          | 4                          | 927 4                          | 50                       | 49                         | 816 11                         |
|                          | 5                          | 925 10                         |                          | 3                          | 896 10                         |                          | 48                         | 825 0                          |
| 52                       | 4                          | 911 8                          | 51                       | 1                          | 735 4                          |                          | 47                         | 833 9                          |
|                          | 2                          | 836 14                         |                          | 50                         | 798 10                         |                          | 46                         | 841 18                         |
|                          | 1                          | 722 10                         |                          | 49                         | 807 1                          |                          | 44                         | 856 18                         |
|                          | 51                         | 780 15                         |                          | 48                         | 815 11                         |                          | 43                         | 863 11                         |
|                          | 50                         | 789 5                          |                          | 47                         | 824 2                          |                          | 42                         | 870 3                          |
|                          | 49                         | 797 14                         |                          | 45                         | 839 5                          |                          | 41                         | 876 16                         |
|                          | 48                         | 806 4                          |                          | 44                         | 845 18                         |                          | 39                         | 888 18                         |
|                          | 46                         | 821 8                          |                          | 43                         | 852 11                         |                          | 38                         | 894 9                          |
|                          | 45                         | 828 3                          |                          | 42                         | 859 4                          |                          | 37                         | 899 19                         |
|                          | 44                         | 834 17                         |                          | 40                         | 871 7                          |                          | 36                         | 905 10                         |
|                          | 43                         | 841 12                         |                          | 39                         | 876 19                         |                          | 34                         | 915 4                          |
|                          | 41                         | 853 18                         |                          | 38                         | 882 10                         |                          | 33                         | 919 9                          |
|                          | 40                         | 859 10                         |                          | 37                         | 888 2                          |                          | 32                         | 923 13                         |
|                          | 39                         | 865 2                          |                          | 35                         | 897 19                         |                          | 31                         | 927 18                         |
|                          | 38                         | 870 14                         |                          | 34                         | 902 5                          |                          | 29                         | 935 9                          |
|                          | 36                         | 880 13                         |                          | 33                         | 905 10                         |                          | 28                         | 938 16                         |
|                          | 35                         | 885 0                          |                          | 32                         | 910 16                         |                          | 27                         | 942 3                          |
|                          | 34                         | 889 7                          |                          | 30                         | 918 9                          |                          | 26                         | 945 10                         |
|                          | 33                         | 893 14                         |                          | 29                         | 921 16                         |                          | 24                         | 951 13                         |
|                          | 31                         | 901 7                          |                          | 28                         | 925 3                          |                          | 23                         | 954 10                         |
|                          | 30                         | 904 4                          |                          | 27                         | 928 10                         |                          | 22                         | 957 7                          |
|                          | 29                         | 908 1                          |                          | 25                         | 934 10                         |                          | 21                         | 960 4                          |
|                          | 28                         | 911 8                          |                          | 24                         | 937 5                          |                          | 19                         | 967 17                         |
|                          | 26                         | 917 10                         |                          | 23                         | 939 19                         |                          | 18                         | 972 14                         |
|                          | 25                         | 920 5                          |                          | 22                         | 942 14                         |                          | 17                         | 977 11                         |
|                          | 24                         | 922 19                         |                          | 20                         | 949 12                         |                          | 16                         | 982 8                          |
|                          | 23                         | 925 14                         |                          | 19                         | 953 17                         |                          | 14                         | 991 9                          |
|                          | 21                         | 931 19                         |                          | 18                         | 958 1                          |                          | 13                         | 995 14                         |
|                          | 20                         | 935 10                         |                          | 17                         | 962 6                          |                          | 12                         | 999 19                         |
|                          | 19                         | 939 1                          |                          | 15                         | 971 1                          |                          | 11                         | 1004 4                         |
|                          | 18                         | 942 12                         |                          | 14                         | 975 13                         |                          | 9                          | 1009 18                        |
|                          | 16                         | 950 17                         |                          | 13                         | 980 4                          |                          | 8                          | 1007 18                        |
|                          | 15                         | 955 12                         |                          | 12                         | 984 16                         |                          | 7                          | 1001 0                         |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                    |
| 50                | 6                    | 990 4                    | 49                | 2                    | 894 2                    |                   | 43                   | 895 14                   |
|                   | 4                    | 958 14                   |                   | 1                    | 771 12                   |                   | 41                   | 910 7                    |
|                   | 3                    | 926 12                   |                   | 47                   | 853 9                    |                   | 40                   | 917 0                    |
|                   | 2                    | 880 0                    |                   | 46                   | 861 13                   |                   | 39                   | 923 13                   |
|                   | 1                    | 759 14                   |                   | 45                   | 869 16                   |                   | 38                   | 930 6                    |
| 49                | 48                   | 834 19                   |                   | 44                   | 878 0                    |                   | 36                   | 942 4                    |
|                   | 47                   | 843 6                    |                   | 42                   | 892 17                   |                   | 35                   | 947 9                    |
|                   | 46                   | 851 13                   |                   | 41                   | 899 10                   |                   | 34                   | 952 13                   |
|                   | 45                   | 860 0                    |                   | 40                   | 906 3                    |                   | 33                   | 957 18                   |
|                   | 43                   | 874 19                   |                   | 39                   | 912 16                   |                   | 31                   | 967 4                    |
|                   | 42                   | 881 12                   |                   | 37                   | 924 16                   |                   | 30                   | 971 6                    |
|                   | 41                   | 888 5                    |                   | 36                   | 930 3                    |                   | 29                   | 975 8                    |
|                   | 40                   | 894 18                   |                   | 35                   | 935 9                    |                   | 28                   | 979 10                   |
|                   | 38                   | 906 18                   |                   | 34                   | 940 16                   |                   | 26                   | 986 18                   |
|                   | 37                   | 912 7                    |                   | 32                   | 950 4                    |                   | 25                   | 990 4                    |
|                   | 36                   | 917 15                   |                   | 31                   | 954 7                    |                   | 24                   | 993 10                   |
|                   | 35                   | 923 4                    |                   | 30                   | 958 9                    | 47                | 23                   | 996 16                   |
|                   | 33                   | 932 15                   |                   | 29                   | 962 12                   |                   | 21                   | 1004 5                   |
|                   | 32                   | 936 19                   |                   | 27                   | 970 0                    |                   | 20                   | 1008 8                   |
|                   | 31                   | 941 2                    |                   | 26                   | 973 7                    |                   | 19                   | 1012 11                  |
|                   | 30                   | 945 6                    |                   | 25                   | 976 13                   |                   | 18                   | 1016 14                  |
|                   | 28                   | 952 16                   | 48                | 24                   | 980 0                    |                   | 16                   | 1026 5                   |
|                   | 27                   | 956 3                    |                   | 22                   | 986 17                   |                   | 15                   | 1031 14                  |
|                   | 26                   | 959 9                    |                   | 21                   | 990 8                    |                   | 14                   | 1037 3                   |
|                   | 25                   | 962 16                   |                   | 20                   | 993 19                   |                   | 13                   | 1042 12                  |
|                   | 23                   | 969 5                    |                   | 19                   | 997 10                   |                   | 11                   | 1048 6                   |
|                   | 22                   | 972 8                    |                   | 17                   | 1006 11                  |                   | 10                   | 1048 10                  |
|                   | 21                   | 975 11                   |                   | 16                   | 1012 0                   |                   | 9                    | 1048 14                  |
|                   | 20                   | 978 14                   |                   | 15                   | 1017 9                   |                   | 8                    | 1048 18                  |
|                   | 18                   | 987 1                    |                   | 14                   | 1022 18                  |                   | 6                    | 1037 2                   |
|                   | 17                   | 992 6                    |                   | 12                   | 1030 16                  |                   | 5                    | 1019 14                  |
|                   | 16                   | 997 11                   |                   | 11                   | 1033 4                   | 46                | 4                    | 1003 8                   |
|                   | 15                   | 1002 16                  |                   | 10                   | 1035 12                  |                   | 3                    | 970 2                    |
|                   | 13                   | 1011 13                  |                   | 9                    | 1038 0                   |                   | 1                    | 795 6                    |
|                   | 12                   | 1015 6                   |                   | 7                    | 1033 2                   |                   | 45                   | 889 8                    |
|                   | 11                   | 1018 19                  |                   | 6                    | 1021 10                  |                   | 44                   | 897 6                    |
|                   | 10                   | 1022 12                  |                   | 5                    | 1004 10                  |                   | 43                   | 905 4                    |
|                   | 8                    | 1024 2                   |                   | 4                    | 988 18                   |                   | 42                   | 913 2                    |
|                   | 7                    | 1017 2                   |                   | 2                    | 908 2                    |                   | 40                   | 927 12                   |
|                   | 6                    | 1005 16                  |                   | 1                    | 783 8                    |                   | 39                   | 934 4                    |
|                   | 5                    | 989 8                    |                   | 46                   | 871 14                   |                   | 38                   | 940 16                   |
|                   | 3                    | 941 12                   | 47                | 45                   | 879 14                   |                   | 37                   | 947 8                    |
|                   |                      |                          |                   | 44                   | 887 14                   |                   | 35                   | 959 3                    |

| Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities |
|-------------------------|----------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------|-------------------------|----------------------------|-------------------------------|
|                         |                            | £. s.                          |                         |                            | £. s.                          |                         |                            | £. s.                         |
| 46                      | 34                         | 964 6                          | 45                      | 24                         | 1019 8                         | 44                      | 15                         | 1074 0                        |
|                         | 33                         | 969 9                          |                         | 23                         | 1022 16                        |                         | 13                         | 1084 3                        |
|                         | 32                         | 974 12                         |                         | 22                         | 1026 4                         |                         | 12                         | 1088 8                        |
|                         | 30                         | 983 15                         |                         | 21                         | 1029 12                        |                         | 11                         | 1092 13                       |
|                         | 29                         | 987 16                         |                         | 19                         | 1038 11                        |                         | 10                         | 1096 18                       |
|                         | 28                         | 991 17                         |                         | 18                         | 1044 2                         |                         | 8                          | 1098 10                       |
|                         | 27                         | 995 18                         |                         | 17                         | 1049 13                        |                         | 7                          | 1091 0                        |
|                         | 25                         | 1003 6                         |                         | 16                         | 1055 4                         |                         | 6                          | 1079 16                       |
|                         | 24                         | 1006 12                        |                         | 14                         | 1065 11                        |                         | 5                          | 1063 0                        |
|                         | 23                         | 1009 18                        |                         | 13                         | 1070 9                         |                         | 3                          | 1010 14                       |
|                         | 22                         | 1013 4                         |                         | 12                         | 1075 6                         |                         | 2                          | 959 4                         |
|                         | 20                         | 1021 7                         |                         | 11                         | 1080 4                         |                         | 1                          | 827 14                        |
|                         | 19                         | 1026 4                         |                         | 9                          | 1086 4                         | 43                      | 42                         | 940 8                         |
|                         | 18                         | 1031 1                         |                         | 8                          | 1084 0                         |                         | 41                         | 948 4                         |
|                         | 17                         | 1035 18                        |                         | 7                          | 1077 2                         |                         | 40                         | 956 0                         |
|                         | 15                         | 1046 11                        |                         | 6                          | 1066 6                         |                         | 39                         | 963 16                        |
|                         | 14                         | 1052 7                         |                         | 4                          | 1032 6                         |                         | 37                         | 977 16                        |
|                         | 13                         | 1058 2                         |                         | 3                          | 997 4                          |                         | 36                         | 984 1                         |
|                         | 12                         | 1063 18                        |                         | 2                          | 946 16                         |                         | 35                         | 990 5                         |
|                         | 10                         | 1066 6                         |                         | 1                          | 817 8                          |                         | 34                         | 996 10                        |
|                         | 9                          | 1052 19                        | 44                      | 43                         | 923 16                         |                         | 32                         | 1007 12                       |
|                         | 8                          | 1059 11                        |                         | 42                         | 931 12                         |                         | 31                         | 1012 10                       |
|                         | 7                          | 1056 4                         |                         | 41                         | 939 8                          |                         | 30                         | 1017 8                        |
|                         | 5                          | 1034 16                        |                         | 40                         | 947 4                          |                         | 29                         | 1022 6                        |
|                         | 4                          | 1017 16                        |                         | 38                         | 961 7                          |                         | 27                         | 1031 3                        |
|                         | 3                          | 983 12                         |                         | 37                         | 967 15                         |                         | 26                         | 1035 2                        |
|                         | 2                          | 934 10                         |                         | 36                         | 974 2                          |                         | 25                         | 1039 1                        |
| 45                      | 44                         | 906 16                         |                         | 35                         | 980 10                         |                         | 24                         | 1043 0                        |
|                         | 43                         | 914 13                         |                         | 33                         | 991 17                         |                         | 22                         | 1051 3                        |
|                         | 42                         | 922 9                          |                         | 32                         | 996 16                         |                         | 21                         | 1055 6                        |
|                         | 41                         | 930 6                          |                         | 31                         | 1001 15                        |                         | 20                         | 1059 9                        |
|                         | 39                         | 944 12                         |                         | 30                         | 1006 14                        |                         | 19                         | 1063 12                       |
|                         | 38                         | 951 2                          |                         | 28                         | 1015 14                        |                         | 17                         | 1073 17                       |
|                         | 37                         | 957 12                         |                         | 27                         | 1019 14                        |                         | 16                         | 1080 0                        |
|                         | 36                         | 964 2                          |                         | 26                         | 1023 14                        |                         | 15                         | 1086 3                        |
|                         | 34                         | 975 13                         |                         | 25                         | 1027 14                        |                         | 14                         | 1092 6                        |
|                         | 33                         | 980 14                         |                         | 23                         | 1035 8                         |                         | 12                         | 1101 8                        |
|                         | 32                         | 985 15                         |                         | 22                         | 1039 2                         |                         | 11                         | 1104 6                        |
|                         | 31                         | 990 16                         |                         | 21                         | 1042 16                        |                         | 10                         | 1107 4                        |
|                         | 29                         | 999 18                         |                         | 20                         | 1045 10                        |                         | 9                          | 1110 2                        |
|                         | 28                         | 1003 19                        |                         | 18                         | 1056 3                         |                         | 7                          | 1105 0                        |
|                         | 27                         | 1007 19                        |                         | 17                         | 1062 2                         |                         | 6                          | 1093 6                        |
|                         | 26                         | 1012 0                         |                         | 16                         | 1068 1                         |                         | 5                          | 1076 0                        |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                    |
| 43                | 4                    | 1059 8                   |                   | 32                   | 1027 12                  |                   | 17                   | 1111 0                   |
|                   | 2                    | 971 10                   |                   | 30                   | 1038 7                   |                   | 16                   | 1117 4                   |
|                   | 1                    | 837 18                   |                   | 29                   | 1043 2                   |                   | 14                   | 1128 19                  |
| 42                | 41                   | 956 16                   |                   | 28                   | 1047 17                  |                   | 13                   | 1134 11                  |
|                   | 40                   | 964 11                   |                   | 27                   | 1052 12                  |                   | 12                   | 1140 2                   |
|                   | 39                   | 972 5                    |                   | 25                   | 1061 5                   |                   | 11                   | 1145 14                  |
|                   | 38                   | 980 0                    |                   | 24                   | 1065 3                   |                   | 9                    | 1153 8                   |
|                   | 36                   | 993 16                   |                   | 23                   | 1069 0                   | 40                | 8                    | 1151 10                  |
|                   | 35                   | 999 18                   |                   | 22                   | 1072 18                  |                   | 7                    | 1144 4                   |
|                   | 34                   | 1006 0                   |                   | 20                   | 1082 6                   |                   | 6                    | 1132 10                  |
|                   | 33                   | 1012 2                   |                   | 19                   | 1087 17                  |                   | 4                    | 1097 2                   |
|                   | 31                   | 1023 0                   |                   | 18                   | 1093 7                   |                   | 3                    | 1060 0                   |
|                   | 30                   | 1027 17                  | 41                | 17                   | 1098 18                  |                   | 2                    | 1006 0                   |
|                   | 29                   | 1032 13                  |                   | 15                   | 1110 7                   |                   | 1                    | 867 14                   |
|                   | 28                   | 1037 10                  |                   | 14                   | 1116 6                   |                   |                      |                          |
|                   | 26                   | 1046 4                   |                   | 13                   | 1122 5                   |                   | 38                   | 1005 19                  |
|                   | 25                   | 1050 3                   |                   | 12                   | 1128 4                   |                   | 37                   | 1013 6                   |
|                   | 24                   | 1054 1                   |                   | 10                   | 1131 8                   |                   | 36                   | 1020 13                  |
|                   | 23                   | 1058 0                   |                   | 9                    | 1128 12                  |                   | 35                   | 1028 0                   |
|                   | 21                   | 1066 13                  |                   | 8                    | 1125 16                  |                   | 33                   | 1041 3                   |
|                   | 20                   | 1071 8                   |                   | 7                    | 1123 1                   |                   | 32                   | 1046 18                  |
|                   | 19                   | 1076 3                   |                   | 5                    | 1102 0                   |                   | 31                   | 1052 13                  |
|                   | 18                   | 1080 18                  |                   | 4                    | 1084 10                  |                   | 30                   | 1058 8                   |
|                   | 16                   | 1091 15                  |                   | 3                    | 1048 0                   |                   | 28                   | 1068 17                  |
|                   | 15                   | 1097 19                  |                   | 2                    | 995 0                    |                   | 27                   | 1073 10                  |
| 43                | 14                   | 1104 2                   |                   |                      |                          |                   | 26                   | 1078 3                   |
|                   | 13                   | 1110 6                   |                   | 39                   | 989 10                   |                   | 25                   | 1082 16                  |
|                   | 11                   | 1117 0                   |                   | 38                   | 997 1                    |                   | 23                   | 1091 14                  |
|                   | 10                   | 1117 10                  |                   | 37                   | 1004 11                  |                   | 22                   | 1096 0                   |
|                   | 9                    | 1118 0                   |                   | 36                   | 1012 2                   | 39                | 21                   | 1100 6                   |
|                   | 8                    | 1118 10                  |                   | 34                   | 1025 9                   |                   | 20                   | 1104 12                  |
|                   | 6                    | 1106 16                  |                   | 33                   | 1031 7                   |                   | 18                   | 1115 10                  |
|                   | 5                    | 1089 0                   |                   | 32                   | 1037 4                   |                   | 17                   | 1122 3                   |
|                   | 4                    | 1072 0                   |                   | 31                   | 1043 2                   |                   | 16                   | 1128 15                  |
|                   | 3                    | 1036 2                   |                   | 29                   | 1053 14                  |                   | 15                   | 1135 8                   |
|                   | 1                    | 848 4                    |                   | 28                   | 1058 8                   |                   | 13                   | 1146 18                  |
|                   |                      |                          | 40                | 27                   | 1063 2                   |                   | 12                   | 1151 16                  |
|                   |                      |                          |                   | 26                   | 1067 16                  |                   | 11                   | 1156 14                  |
| 41                | 40                   | 973 1                    |                   | 24                   | 1076 9                   |                   | 10                   | 1161 12                  |
|                   | 39                   | 980 14                   |                   | 23                   | 1080 9                   |                   | 8                    | 1164 8                   |
|                   | 38                   | 988 7                    |                   | 22                   | 1084 8                   |                   | 7                    | 1156 14                  |
|                   | 37                   | 996 0                    |                   | 21                   | 1088 8                   |                   | 6                    | 1144 14                  |
|                   | 35                   | 1009 13                  |                   | 19                   | 1098 12                  |                   | 5                    | 1126 12                  |
|                   | 34                   | 1015 13                  |                   | 18                   | 1104 16                  |                   | 3                    | 1071 18                  |
|                   | 33                   | 1021 12                  |                   |                      |                          |                   |                      |                          |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|-------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                   |
| 39                | 2                    | 1017 2                   |                   | 23                   | 1111 16                  | 36                | 4                    | 1142 18                 |
|                   | 1                    | 877 0                    |                   | 21                   | 1121 13                  |                   | 3                    | 1104 10                 |
|                   |                      |                          |                   | 20                   | 1127 0                   |                   | 2                    | 1048 14                 |
|                   | 37                   | 1022 1                   |                   | 19                   | 1132 7                   |                   | 34                   | 1067 18                 |
|                   | 36                   | 1029 5                   |                   | 18                   | 1137 14                  |                   | 33                   | 1074 13                 |
|                   | 35                   | 1036 8                   |                   | 16                   | 1149 17                  |                   | 32                   | 1081 7                  |
|                   | 34                   | 1043 12                  |                   | 15                   | 1156 14                  |                   | 31                   | 1088 2                  |
|                   | 32                   | 1056 9                   |                   | 14                   | 1163 11                  |                   | 29                   | 1100 3                  |
|                   | 31                   | 1062 2                   |                   | 13                   | 1170 8                   |                   | 28                   | 1105 11                 |
|                   | 30                   | 1067 15                  | 37                | 11                   | 1178 4                   |                   | 27                   | 1110 18                 |
|                   | 29                   | 1073 8                   |                   | 10                   | 1179 3                   |                   | 26                   | 1116 6                  |
|                   | 27                   | 1083 12                  |                   | 9                    | 1180 1                   |                   | 24                   | 1126 5                  |
|                   | 26                   | 1088 4                   |                   | 8                    | 1181 0                   |                   | 23                   | 1130 16                 |
|                   | 25                   | 1092 15                  |                   | 6                    | 1169 0                   |                   | 22                   | 1135 7                  |
|                   | 24                   | 1097 7                   |                   | 5                    | 1149 18                  |                   | 21                   | 1139 18                 |
|                   | 22                   | 1106 15                  |                   | 4                    | 1131 18                  |                   | 19                   | 1151 7                  |
|                   | 21                   | 1111 10                  |                   | 3                    | 1094 2                   |                   | 18                   | 1158 4                  |
| 38                | 20                   | 1116 5                   |                   | 1                    | 895 10                   | 35                | 17                   | 1165 1                  |
|                   | 19                   | 1121 0                   |                   |                      |                          |                   | 16                   | 1171 18                 |
|                   | 17                   | 1132 11                  |                   | 35                   | 1053 1                   |                   | 14                   | 1184 18                 |
|                   | 16                   | 1139 8                   |                   | 34                   | 1059 18                  |                   | 13                   | 1191 3                  |
|                   | 15                   | 1146 5                   |                   | 33                   | 1066 15                  |                   | 12                   | 1197 7                  |
|                   | 14                   | 1153 2                   |                   | 32                   | 1073 12                  |                   | 11                   | 1203 12                 |
|                   | 12                   | 1163 9                   |                   | 30                   | 1085 19                  |                   | 9                    | 1212 0                  |
|                   | 11                   | 1166 18                  |                   | 29                   | 1091 8                   |                   | 8                    | 1210 6                  |
|                   | 10                   | 1170 7                   |                   | 28                   | 1096 17                  |                   | 7                    | 1203 2                  |
|                   | 9                    | 1173 16                  |                   | 27                   | 1102 6                   |                   | 6                    | 1191 8                  |
|                   | 7                    | 1169 6                   |                   | 25                   | 1112 5                   |                   | 4                    | 1154 0                  |
|                   | 6                    | 1156 16                  |                   | 24                   | 1116 15                  |                   | 3                    | 1114 16                 |
|                   | 5                    | 1138 6                   |                   | 23                   | 1121 4                   |                   | 2                    | 1058 2                  |
|                   | 4                    | 1120 16                  |                   | 22                   | 1125 14                  |                   | 1                    | 912 10                  |
|                   | 2                    | 1028 2                   | 36                | 20                   | 1136 7                   |                   |                      |                         |
|                   | 1                    | 886 4                    |                   | 19                   | 1142 10                  |                   | 33                   | 1082 9                  |
|                   |                      |                          |                   | 18                   | 1148 13                  |                   | 32                   | 1089 1                  |
|                   | 36                   | 1037 15                  |                   | 17                   | 1151 16                  |                   | 31                   | 1095 12                 |
|                   | 35                   | 1041 16                  |                   | 15                   | 1167 11                  |                   | 30                   | 1102 4                  |
|                   | 34                   | 1051 17                  |                   | 14                   | 1174 4                   |                   | 28                   | 1114 1                  |
|                   | 33                   | 1058 18                  |                   | 13                   | 1180 17                  |                   | 27                   | 1119 7                  |
|                   | 31                   | 1071 9                   |                   | 12                   | 1187 10                  | 34                | 26                   | 1124 12                 |
| 37                | 30                   | 1077 0                   |                   | 10                   | 1191 10                  |                   | 25                   | 1129 18                 |
|                   | 29                   | 1082 11                  |                   | 9                    | 1188 18                  |                   | 23                   | 1140 1                  |
|                   | 28                   | 1088 2                   |                   | 8                    | 1186 6                   |                   | 22                   | 1141 18                 |
|                   | 26                   | 1098 3                   |                   | 7                    | 1183 15                  |                   | 21                   | 1149 15                 |
|                   | 25                   | 1102 14                  |                   | 5                    | 1161 12                  |                   | 20                   | 1154 12                 |
|                   | 24                   | 1107 5                   |                   |                      |                          |                   |                      |                         |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                    |
| 34                | 18                   | 1166 15                  | 32                | 29                   | 1123 5                   | 31                | 5                    | 1212 4                   |
|                   | 17                   | 1174 1                   |                   | 28                   | 1129 12                  |                   | 4                    | 1193 0                   |
|                   | 16                   | 1181 6                   |                   | 26                   | 1141 0                   |                   | 3                    | 1152 18                  |
|                   | 15                   | 1188 12                  |                   | 25                   | 1146 3                   |                   | 2                    | 1094 10                  |
|                   | 13                   | 1201 8                   |                   | 24                   | 1151 5                   | 30                | 29                   | 1137 8                   |
|                   | 12                   | 1206 18                  |                   | 23                   | 1156 8                   |                   | 28                   | 1143 10                  |
|                   | 11                   | 1212 8                   |                   | 21                   | 1167 8                   |                   | 27                   | 1149 12                  |
|                   | 10                   | 1217 18                  |                   | 20                   | 1173 7                   |                   | 26                   | 1155 14                  |
|                   | 8                    | 1221 6                   |                   | 19                   | 1179 5                   |                   | 24                   | 1166 18                  |
|                   | 7                    | 1213 16                  |                   | 18                   | 1185 4                   |                   | 23                   | 1172 0                   |
|                   | 6                    | 1201 12                  |                   | 16                   | 1198 12                  |                   | 22                   | 1177 2                   |
|                   | 5                    | 1183 0                   |                   | 15                   | 1206 2                   |                   | 21                   | 1182 4                   |
|                   | 3                    | 1125 4                   |                   | 14                   | 1213 12                  |                   | 19                   | 1194 15                  |
|                   | 2                    | 1067 12                  |                   | 13                   | 1221 2                   |                   | 18                   | 1202 4                   |
|                   | 1                    | 920 6                    |                   | 11                   | 1229 17                  |                   | 17                   | 1209 13                  |
| 33                | 32                   | 1096 13                  | 31                | 10                   | 1231 3                   |                   | 16                   | 1217 2                   |
|                   | 31                   | 1103 2                   |                   | 9                    | 1232 8                   |                   | 14                   | 1231 8                   |
|                   | 30                   | 1109 11                  |                   | 8                    | 1233 14                  |                   | 13                   | 1238 4                   |
|                   | 29                   | 1116 0                   |                   | 6                    | 1222 0                   |                   | 12                   | 1245 0                   |
|                   | 27                   | 1127 14                  |                   | 5                    | 1202 10                  |                   | 11                   | 1251 16                  |
|                   | 26                   | 1132 18                  |                   | 4                    | 1183 14                  |                   | 9                    | 1261 10                  |
|                   | 25                   | 1138 2                   |                   | 3                    | 1144 4                   |                   | 8                    | 1260 2                   |
|                   | 24                   | 1143 6                   |                   | 1                    | 936 0                    |                   | 7                    | 1252 18                  |
|                   | 22                   | 1153 16                  |                   | 30                   | 1124 2                   |                   | 6                    | 1240 16                  |
|                   | 21                   | 1159 2                   |                   | 29                   | 1130 6                   |                   | 4                    | 1202 6                   |
|                   | 20                   | 1164 8                   |                   | 28                   | 1136 10                  |                   | 3                    | 1161 12                  |
|                   | 19                   | 1169 14                  |                   | 27                   | 1142 14                  |                   | 2                    | 1102 10                  |
|                   | 17                   | 1182 10                  |                   | 25                   | 1153 19                  |                   | 1                    | 950 8                    |
|                   | 16                   | 1190 0                   | 31                | 24                   | 1159 0                   | 29                | 28                   | 1150 9                   |
|                   | 15                   | 1197 10                  |                   | 23                   | 1164 1                   |                   | 27                   | 1156 8                   |
|                   | 14                   | 1205 0                   |                   | 22                   | 1169 2                   |                   | 26                   | 1162 7                   |
|                   | 12                   | 1216 9                   |                   | 20                   | 1180 18                  |                   | 25                   | 1168 6                   |
|                   | 11                   | 1220 8                   |                   | 19                   | 1187 13                  |                   | 23                   | 1179 14                  |
|                   | 10                   | 1224 7                   |                   | 18                   | 1194 7                   |                   | 22                   | 1185 2                   |
|                   | 9                    | 1228 6                   |                   | 17                   | 1201 2                   |                   | 21                   | 1190 10                  |
|                   | 7                    | 1224 8                   |                   | 15                   | 1215 1                   |                   | 20                   | 1195 18                  |
|                   | 6                    | 1211 16                  |                   | 14                   | 1222 6                   |                   | 18                   | 1209 4                   |
|                   | 5                    | 1192 14                  |                   | 13                   | 1229 11                  |                   | 17                   | 1217 2                   |
|                   | 4                    | 1174 8                   |                   | 12                   | 1236 16                  |                   | 16                   | 1225 0                   |
|                   | 2                    | 1077 0                   |                   | 10                   | 1241 14                  |                   | 15                   | 1232 18                  |
|                   | 1                    | 928 4                    |                   | 9                    | 1239 7                   |                   | 13                   | 1246 17                  |
| 32                | 31                   | 1110 11                  |                   | 8                    | 1236 19                  |                   | 12                   | 1252 18                  |
|                   | 30                   | 1116 18                  |                   | 7                    | 1234 12                  |                   | 11                   | 1258 19                  |

| Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. | Age<br>of the<br>Eldest | Ages of<br>the<br>Youngest | Values of<br>the<br>Annuities. |
|-------------------------|----------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------|-------------------------|----------------------------|--------------------------------|
|                         |                            | £. s.                          |                         |                            | £. s.                          |                         |                            | £. s.                          |
| 29                      | 10                         | 1265 0                         | 27                      | 10                         | 1274 16                        | 25                      | 6                          | 1282 14                        |
|                         | 8                          | 1269 6                         |                         | 9                          | 1276 9                         |                         | 4                          | 1243 4                         |
|                         | 7                          | 1261 18                        |                         | 8                          | 1278 2                         |                         | 3                          | 1201 6                         |
|                         | 6                          | 1249 10                        |                         | 6                          | 1266 16                        |                         | 2                          | 1140 0                         |
|                         | 5                          | 1230 6                         |                         | 5                          | 1246 16                        |                         | 1                          | 982 14                         |
|                         | 3                          | 1170 6                         |                         | 4                          | 1227 8                         | 24                      | 23                         | 1212 3                         |
|                         | 2                          | 1110 8                         |                         | 3                          | 1186 8                         |                         | 22                         | 1218 3                         |
|                         | 1                          | 957 2                          |                         | 1                          | 970 8                          |                         | 21                         | 1224 2                         |
| 28                      | 27                         | 1163 3                         | 26                      | 25                         | 1187 17                        |                         | 20                         | 1230 2                         |
|                         | 26                         | 1169 0                         |                         | 24                         | 1193 10                        |                         | 18                         | 1244 11                        |
|                         | 25                         | 1174 17                        |                         | 23                         | 1199 3                         |                         | 17                         | 1253 0                         |
|                         | 24                         | 1180 14                        |                         | 22                         | 1204 16                        |                         | 16                         | 1261 9                         |
|                         | 22                         | 1192 9                         |                         | 20                         | 1217 16                        |                         | 15                         | 1269 18                        |
|                         | 21                         | 1198 6                         |                         | 19                         | 1225 2                         |                         | 13                         | 1284 19                        |
|                         | 20                         | 1204 3                         |                         | 18                         | 1232 8                         |                         | 12                         | 1291 10                        |
|                         | 19                         | 1210 0                         |                         | 17                         | 1239 14                        |                         | 11                         | 1298 1                         |
|                         | 17                         | 1223 19                        |                         | 15                         | 1254 16                        |                         | 10                         | 1304 12                        |
|                         | 16                         | 1232 3                         |                         | 14                         | 1262 13                        |                         | 8                          | 1310 0                         |
|                         | 15                         | 1240 6                         |                         | 13                         | 1270 9                         |                         | 7                          | 1302 12                        |
|                         | 14                         | 1248 7                         |                         | 12                         | 1278 6                         |                         | 6                          | 1290 2                         |
|                         | 12                         | 1260 17                        |                         | 10                         | 1283 19                        |                         | 5                          | 1270 10                        |
|                         | 11                         | 1265 6                         |                         | 9                          | 1281 16                        |                         | 3                          | 1208 14                        |
|                         | 10                         | 1269 15                        |                         | 8                          | 1279 13                        |                         | 2                          | 1146 18                        |
|                         | 9                          | 1274 4                         |                         | 7                          | 1277 10                        |                         | 1                          | 988 6                          |
| 27                      | 7                          | 1270 16                        | 25                      | 5                          | 1255 0                         | 23                      | 22                         | 1224 6                         |
|                         | 6                          | 1258 2                         |                         | 4                          | 1235 6                         |                         | 21                         | 1230 15                        |
|                         | 5                          | 1238 10                        |                         | 3                          | 1193 16                        |                         | 20                         | 1237 3                         |
|                         | 4                          | 1219 10                        |                         | 2                          | 1133 4                         |                         | 19                         | 1243 12                        |
|                         | 2                          | 1118 8                         |                         | 24                         | 1200 2                         |                         | 17                         | 1258 13                        |
|                         | 1                          | 963 14                         |                         | 23                         | 1205 16                        |                         | 16                         | 1267 7                         |
|                         | 26                         | 1175 13                        |                         | 22                         | 1211 10                        |                         | 15                         | 1276 0                         |
|                         | 25                         | 1181 8                         |                         | 21                         | 1217 4                         |                         | 14                         | 1284 14                        |
|                         | 24                         | 1187 3                         |                         | 19                         | 1230 18                        |                         | 12                         | 1298 5                         |
|                         | 23                         | 1192 18                        |                         | 18                         | 1238 19                        |                         | 11                         | 1303 3                         |
|                         | 21                         | 1205 3                         |                         | 17                         | 1246 19                        |                         | 10                         | 1308 0                         |
|                         | 20                         | 1211 13                        |                         | 16                         | 1255 0                         |                         | 9                          | 1312 18                        |
|                         | 19                         | 1218 2                         |                         | 14                         | 1270 7                         |                         | 7                          | 1310 4                         |
|                         | 18                         | 1224 12                        |                         | 13                         | 1277 14                        |                         | 6                          | 1297 8                         |
|                         | 16                         | 1239 3                         |                         | 12                         | 1285 1                         |                         | 5                          | 1277 14                        |
|                         | 15                         | 1247 5                         |                         | 11                         | 1292 8                         |                         | 4                          | 1258 8                         |
|                         | 14                         | 1255 6                         |                         | 9                          | 1303 4                         |                         | 2                          | 1153 14                        |
|                         | 13                         | 1263 8                         |                         | 8                          | 1302 2                         |                         | 1                          | 994 0                          |
|                         | 11                         | 1273 3                         |                         | 7                          | 1295 0                         |                         |                            |                                |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                    |
| 22                | 21                   | 1236 7                   | 20                | 7                    | 1334 12                  | 17                | 6                    | 1348 14                  |
|                   | 20                   | 1243 8                   |                   | 6                    | 1321 4                   |                   | 5                    | 1328 10                  |
|                   | 19                   | 1250 9                   |                   | 4                    | 1280 6                   |                   | 4                    | 1307 10                  |
|                   | 18                   | 1257 10                  |                   | 3                    | 1238 6                   |                   | 3                    | 1262 18                  |
|                   | 16                   | 1273 5                   |                   | 2                    | 1175 10                  |                   | 1                    | 1033 10                  |
|                   | 15                   | 1281 18                  | 19                | 1                    | 1012 8                   | 16                | 15                   | 1330 5                   |
|                   | 14                   | 1290 11                  |                   | 18                   | 1274 18                  |                   | 14                   | 1339 6                   |
|                   | 13                   | 1299 4                   |                   | 17                   | 1281 19                  |                   | 13                   | 1348 7                   |
|                   | 11                   | 1309 16                  |                   | 16                   | 1288 19                  |                   | 12                   | 1357 8                   |
|                   | 10                   | 1311 16                  |                   | 15                   | 1296 0                   |                   | 10                   | 1364 13                  |
|                   | 9                    | 1313 16                  |                   | 13                   | 1320 1                   |                   | 9                    | 1362 18                  |
|                   | 8                    | 1315 16                  |                   | 12                   | 1327 2                   |                   | 8                    | 1361 3                   |
|                   | 6                    | 1304 16                  |                   | 11                   | 1334 3                   |                   | 7                    | 1359 9                   |
|                   | 5                    | 1284 18                  |                   | 10                   | 1341 4                   |                   | 5                    | 1338 4                   |
|                   | 4                    | 1265 14                  |                   | 8                    | 1349 2                   |                   | 4                    | 1317 10                  |
|                   | 3                    | 1223 10                  |                   | 7                    | 1343 2                   |                   | 3                    | 1272 12                  |
|                   | 1                    | 999 12                   |                   | 6                    | 1330 8                   |                   | 2                    | 1207 4                   |
| 21                | 20                   | 1248 14                  | 18                | 5                    | 1309 0                   | 15                | 14                   | 1349 14                  |
|                   | 19                   | 1256 10                  |                   | 3                    | 1245 14                  |                   | 13                   | 1358 6                   |
|                   | 18                   | 1264 6                   |                   | 2                    | 1183 2                   |                   | 12                   | 1366 18                  |
|                   | 17                   | 1272 2                   |                   | 1                    | 1019 8                   |                   | 11                   | 1375 10                  |
|                   | 15                   | 1288 5                   | 18                | 17                   | 1293 7                   |                   | 9                    | 1389 0                   |
|                   | 14                   | 1296 12                  |                   | 16                   | 1302 12                  |                   | 8                    | 1388 2                   |
|                   | 13                   | 1304 19                  |                   | 15                   | 1311 17                  |                   | 7                    | 1380 8                   |
|                   | 12                   | 1313 6                   |                   | 14                   | 1321 2                   |                   | 6                    | 1367 12                  |
|                   | 10                   | 1319 15                  |                   | 12                   | 1335 12                  |                   | 4                    | 1327 8                   |
|                   | 9                    | 1317 17                  |                   | 11                   | 1340 19                  |                   | 3                    | 1282 8                   |
|                   | 8                    | 1315 18                  |                   | 10                   | 1346 5                   |                   | 2                    | 1216 8                   |
|                   | 7                    | 1314 0                   |                   | 9                    | 1351 12                  |                   | 1                    | 1048 2                   |
|                   |                      | 1292 2                   |                   | 7                    | 1351 10                  | 14                | 13                   | 1368 3                   |
|                   |                      | 1273 0                   |                   | 6                    | 1339 10                  |                   | 12                   | 1375 18                  |
|                   | 3                    | 1230 18                  |                   | 5                    | 1318 14                  |                   | 11                   | 1383 13                  |
|                   | 2                    | 1168 0                   |                   | 4                    | 1297 12                  |                   | 10                   | 1391 8                   |
| 20                | 19                   | 1262 0                   |                   | 2                    | 1190 12                  |                   | 8                    | 1398 10                  |
|                   | 18                   | 1270 11                  |                   | 1                    | 1026 10                  |                   | 7                    | 1390 12                  |
|                   | 17                   | 1279 1                   | 17                | 16                   | 1311 2                   |                   | 6                    | 1377 8                   |
|                   | 16                   | 1287 12                  |                   | 15                   | 1320 7                   |                   | 5                    | 1357 0                   |
|                   | 14                   | 1303 19                  |                   | 14                   | 1329 11                  |                   | 3                    | 1292 2                   |
|                   | 13                   | 311 17                   |                   | 13                   | 1338 16                  |                   | 2                    | 1225 10                  |
|                   | 12                   | 319 14                   |                   | 11                   | 1350 7                   |                   | 1                    | 1055 12                  |
|                   | 11                   | 127 12                   |                   | 10                   | 1352 15                  | 13                | 12                   | 1384 18                  |
|                   | 9                    | 140 16                   |                   | 9                    | 1355 2                   |                   | 11                   | 1390 18                  |
|                   | 8                    | 131 6                    |                   | 8                    | 1357 10                  |                   |                      |                          |

| Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. | Age of the Eldest | Ages of the Youngest | Values of the Annuities. |
|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|-------------------|----------------------|--------------------------|
|                   |                      | £. s.                    |                   |                      | £. s.                    |                   |                      | £. s.                    |
| 13                | 10                   | 1396 18                  | 11                | 4                    | 1364 18                  | 8                 | 2                    | 1264 8                   |
|                   | 9                    | 1402 18                  |                   | 3                    | 1318 14                  |                   | 1                    | 1089 0                   |
|                   | 7                    | 1400 18                  |                   | 2                    | 1252 0                   |                   | 6                    | 1414 0                   |
|                   | 6                    | 1387 4                   | 10                | 9                    | 1435 2                   | 7                 | 5                    | 1392 14                  |
|                   | 5                    | 1366 2                   |                   | 8                    | 1435 0                   |                   | 4                    | 1371 14                  |
|                   | 4                    | 1345 8                   |                   | 7                    | 1428 4                   |                   | 3                    | 1325 18                  |
|                   | 2                    | 1234 14                  |                   | 6                    | 1415 0                   |                   | 1                    | 1084 2                   |
|                   | 1                    | 1063 4                   |                   | 4                    | 1372 12                  | 6                 | 5                    | 1380 6                   |
|                   |                      |                          |                   | 3                    | 1326 14                  |                   | 4                    | 1359 6                   |
|                   |                      |                          |                   | 2                    | 1258 10                  |                   | 3                    | 1314 4                   |
| 12                | 11                   | 1399 10                  |                   | 1                    | 1084 10                  |                   | 2                    | 1247 2                   |
|                   | 10                   | 1402 8                   | 9                 | 8                    | 1440 10                  | 5                 | 4                    | 1339 4                   |
|                   | 9                    | 1405 6                   |                   | 7                    | 1433 8                   |                   | 3                    | 1294 12                  |
|                   | 8                    | 1408 4                   |                   | 6                    | 1420 10                  |                   | 2                    | 1228 16                  |
|                   | 6                    | 1397 0                   |                   | 5                    | 1399 0                   |                   | 1                    | 1018 8                   |
|                   | 5                    | 1375 2                   |                   | 3                    | 1330 2                   | 4                 | 3                    | 1275 6                   |
|                   | 4                    | 1353 8                   |                   | 2                    | 1263 18                  |                   | 2                    | 1210 6                   |
|                   | 3                    | 1307 18                  |                   | 1                    | 1088 6                   |                   | 1                    | 1012 16                  |
| 11                | 1                    | 1070 14                  | 8                 | 7                    | 1433 14                  | 3                 | 2                    | 1170 6                   |
|                   | 10                   | 1422 16                  |                   | 6                    | 1420 12                  |                   | 1                    | 1008 8                   |
|                   | 9                    | 1427 4                   |                   | 5                    | 1399 8                   |                   | 1                    | 97 12                    |
|                   | 8                    | 1427 6                   |                   | 4                    | 1378 0                   |                   |                      |                          |
|                   | 7                    | 1420 6                   |                   |                      |                          |                   |                      |                          |
|                   | 5                    | 1386 4                   |                   |                      |                          |                   |                      |                          |

\*\*\* Any two lives not inserted in the above table, may be found in one of the tables from page 42 to 65, and the value must be taken at 4 per cent.

### EXAMPLES.

1. What is the value of an annuity of £60 per annum, during the joint continuance of two lives, aged 24 and 8?

By the above table, the value of an annuity of £100 per annum is £1310.

Then, by the rule of three, say, as £100 : £1310 : £60 : £786.

2. What is the value of an annuity of £120 per annum, during the joint continuance of two lives, aged 28 and 18?

By table 13, opposite 18 and 28, and under 4 per cent. is 12,158

Multiply by the annuity.... 120

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1458,960

20

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19,20

12

---

2,4

4

---

1,6

*Answer* £1458. 19s. 2½d.

3. What is the value of an annuity of £500 per annum, during the joint continuance of two lives, aged 13 and 10?

By the last table, the value of an annuity of £100

per annum, is £1396 18

Multiply by..... 5

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*Answer* £6984 10

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*Rule for determining the value of an annuity of £100 per annum, payable yearly, and held on the longest of two lives.*

The values of an annuity of £100 per annum, held on each of the single lives, to be added together (from table 1 in the appendix), and from this sum the value of an annuity, held on the joint continuance of the two lives (from table 3, in the appendix), to be subtracted: the result is the value of an annuity of £100 per annum, held on the longest of the two lives.

#### EXAMPLE.

Required the value of an annuity of £100 per annum, on the longest of two lives, aged 9 and 15, interest at 4 per cent. ?

|                                                         | £.    | s. |
|---------------------------------------------------------|-------|----|
| The value of a life, aged 9, is                         | 1762  | 10 |
| — 15, is                                                | 1679  | 2  |
|                                                         | <hr/> |    |
|                                                         | 3441  | 12 |
| The value of the joint continuance of the two lives, is | 1389  | 0  |
|                                                         | <hr/> |    |
| <i>Answer</i>                                           | £2052 | 12 |
|                                                         | <hr/> |    |

*Rule for determining the value of an annuity of £100 per annum, payable yearly, and held on the joint continuance of three lives.*

The value of an annuity of £100 per annum, on the joint continuance of the two elder lives, is to be found (from table 3 in the appendix). The age of a single life of the same (or nearest) value, with the annuity of the said joint lives, to be found from table 1, in the appendix. The value of £100 per annum, on the joint continuance of this life and the younger life, from table 3, in the appendix. Five pounds being deducted from the said sum, is the value of an annuity of £100 per annum, held on the joint continuance of the three lives.

#### EXAMPLE.

Required the value of an annuity of £100 per annum, held on the joint continuance of three lives, aged 40, 54 and 58.

The value of an annuity on two lives, aged 54 and 58, is £695. 8s. The age nearest to this value, in table 1, is 68. The value of an annuity on two lives, aged 40 and 68, is £600. 5s. from which value subtract £5, and the result is £595. 5s. the answer.

*Rule for determining the value of an annuity of £100 per annum, payable yearly, and held on the longest of three lives.*

The value of an annuity of £100 per annum for each of the three single lives, to be extracted from table 1, in the appendix, and to be added together. The value of an annuity of £100 per annum, on the joint continuance of the two youngest lives; also the value of an annuity of £100 per annum, on the joint continuance of the two eldest lives; also the value of an annuity of £100 per annum, on the joint continuance of the oldest life and the youngest life (all found by table 3, in the appendix); to be subtracted from the sum or addition of the annuities on the three single lives. To the result is to be added the value of an annuity of £100 per annum, held on the joint continuance of the three lives: the amount is the value of an annuity of £100 per annum on the longest of the three lives.

#### EXAMPLE.

Required the value of an annuity of £100 per annum, held on the longest of three lives, aged 40, 54 and 58.

|                                                    | £.    | s. |
|----------------------------------------------------|-------|----|
| The value of £100 per annum on a life, aged 40, is | 1319  | 14 |
| — — — — — 54, is                                   | 1012  | 2  |
| — — — — — 58, is                                   | 951   | 12 |
|                                                    | <hr/> |    |
|                                                    | 3283  | 8  |
| The value of £100 per annum, held on two           |       |    |
| lives, aged 40 and 54, is                          | 835   | 2  |
| — — — — — 54 and 58, is                            | 695   | 8  |
| — — — — — 40 and 58, is                            | 779   | 8  |
|                                                    | <hr/> |    |
|                                                    | 2309  | 18 |
|                                                    | <hr/> |    |
|                                                    | 973   | 10 |
| The value of £100 per annum, held on the three     |       |    |
| lives, found by the last rule, is                  | 595   | 5  |
|                                                    | <hr/> |    |
| Answer                                             | £1568 | 15 |
|                                                    | <hr/> |    |

TABLE IV.

Exhibiting the sums producing each progressive penny in a shilling of the respective rates of duty granted by stat. 55, Geo. III. c. 184.

| Sums.                |  | £1 per Cent.  |  | Sums.               |  | £3 per Cent. |  | Sums.                |  | £6 per Cent.  |  |
|----------------------|--|---------------|--|---------------------|--|--------------|--|----------------------|--|---------------|--|
| £. s. d.             |  | £. s. d.      |  | £. s. d.            |  | £. s. d.     |  | £. s. d.             |  | £. s. d.      |  |
| 0 8 4                |  | 0 0 1         |  | 1 10 $6\frac{2}{3}$ |  | 0 0 11       |  | 0 8 4                |  | 0 0 6         |  |
| 0 16 8               |  | 0 0 2         |  | 1 13 4              |  | 0 1 0        |  | 0 9 $8\frac{2}{3}$   |  | 0 0 7         |  |
| 1 5 0                |  | 0 0 3         |  | Sums.               |  | £4 per Cent. |  | 0 11 $1\frac{1}{3}$  |  | 0 0 8         |  |
| 1 13 4               |  | 0 0 4         |  | 0 2 1               |  | 0 0 1        |  | 0 12 6               |  | 0 0 9         |  |
| 2 1 8                |  | 0 0 5         |  | 0 4 2               |  | 0 0 2        |  | 0 13 $10\frac{2}{3}$ |  | 0 0 10        |  |
| 2 10 0               |  | 0 0 6         |  | 0 6 3               |  | 0 0 3        |  | 0 15 $3\frac{1}{3}$  |  | 0 0 11        |  |
| 2 18 4               |  | 0 0 7         |  | 0 8 4               |  | 0 0 4        |  | 0 16 8               |  | 0 1 0         |  |
| 3 6 8                |  | 0 0 8         |  | 0 10 5              |  | 0 0 5        |  | Sums.                |  | £5 per Cent.  |  |
| 3 15 0               |  | 0 0 9         |  | 0 12 6              |  | 0 0 6        |  | 0 1 $0\frac{1}{2}$   |  | 0 0 1         |  |
| 4 3 4                |  | 0 0 10        |  | 0 14 7              |  | 0 0 7        |  | 0 2 1                |  | 0 0 2         |  |
| 4 11 8               |  | 0 0 11        |  | 0 16 8              |  | 0 0 8        |  | 0 3 $1\frac{1}{2}$   |  | 0 0 3         |  |
| 5 0 0                |  | 0 1 0         |  | 0 18 9              |  | 0 0 9        |  | 0 4 2                |  | 0 0 4         |  |
| Sums.                |  | £2½ per Cent. |  | 1 0 10              |  | 0 0 10       |  | 0 5 $2\frac{1}{2}$   |  | 0 0 5         |  |
| 0 3 4                |  | 0 0 1         |  | 1 2 11              |  | 0 0 11       |  | 0 6 3                |  | 0 0 6         |  |
| 0 6 8                |  | 0 0 2         |  | 1 5 0               |  | 0 1 0        |  | 0 7 $3\frac{1}{2}$   |  | 0 0 7         |  |
| 0 10 0               |  | 0 0 3         |  | Sums.               |  | £5 per Cent. |  | 0 8 4                |  | 0 0 8         |  |
| 0 13 4               |  | 0 0 4         |  | 0 1 8               |  | 0 0 1        |  | 0 9 $4\frac{1}{2}$   |  | 0 0 9         |  |
| 0 16 8               |  | 0 0 5         |  | 0 3 4               |  | 0 0 2        |  | 0 10 5               |  | 0 0 10        |  |
| 1 0 0                |  | 0 0 6         |  | 0 5 0               |  | 0 0 3        |  | 0 11 $5\frac{1}{2}$  |  | 0 0 11        |  |
| 1 3 4                |  | 0 0 7         |  | 0 6 8               |  | 0 0 4        |  | 0 12 6               |  | 0 1 0         |  |
| 1 6 8                |  | 0 0 8         |  | 0 8 4               |  | 0 0 5        |  | Sums.                |  | £10 per Cent. |  |
| 1 10 0               |  | 0 0 9         |  | 0 10 0              |  | 0 0 6        |  | 0 0 10               |  | 0 0 1         |  |
| 1 13 4               |  | 0 0 10        |  | 0 11 8              |  | 0 0 7        |  | 0 1 8                |  | 0 0 2         |  |
| 1 16 8               |  | 0 0 11        |  | 0 13 4              |  | 0 0 8        |  | 0 2 6                |  | 0 0 3         |  |
| 2 0 0                |  | 0 1 0         |  | 0 15 0              |  | 0 0 9        |  | 0 3 4                |  | 0 0 4         |  |
| Sums.                |  | £3 per Cent.  |  | 0 16 8              |  | 0 0 10       |  | 0 4 2                |  | 0 0 5         |  |
| 0 2 $9\frac{1}{3}$   |  | 0 0 1         |  | 0 18 4              |  | 0 0 11       |  | 0 5 0                |  | 0 0 6         |  |
| 0 5 $6\frac{2}{3}$   |  | 0 0 2         |  | 1 0 0               |  | 0 1 0        |  | 0 5 10               |  | 0 0 7         |  |
| 0 8 4                |  | 0 0 3         |  | Sums.               |  | £6 per Cent. |  | 0 6 8                |  | 0 0 8         |  |
| 0 11 $1\frac{1}{3}$  |  | 0 0 4         |  | 0 1 $4\frac{2}{3}$  |  | 0 0 1        |  | 0 7 6                |  | 0 0 9         |  |
| 0 13 $10\frac{2}{3}$ |  | 0 0 5         |  | 0 2 $9\frac{1}{3}$  |  | 0 0 2        |  | 0 8 4                |  | 0 0 10        |  |
| 0 16 8               |  | 0 0 6         |  | 0 4 2               |  | 0 0 3        |  | 0 9 2                |  | 0 0 11        |  |
| 0 19 $5\frac{1}{3}$  |  | 0 0 7         |  | 0 5 $6\frac{2}{3}$  |  | 0 0 4        |  | 0 10 0               |  | 0 1 0         |  |
| 1 2 $2\frac{2}{3}$   |  | 0 0 8         |  | 0 6 $11\frac{1}{3}$ |  | 0 0 5        |  |                      |  |               |  |
| 1 5 0                |  | 0 0 9         |  |                     |  |              |  |                      |  |               |  |
| 1 7 $9\frac{2}{3}$   |  | 0 0 10        |  |                     |  |              |  |                      |  |               |  |

TABLE V.

Shewing the annual rates of Government life annuities on a single life, as granted under an act of the 48th Geo. III. for every £100 money, according to the price of 3 per cent. consolidated or reduced bank stock, from 60 to 80, and from the age of 35 to 75.

|      | Price of £100, 3 per Cent. Stock. |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|------|-----------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Age. | 60                                |    |    | 65 |    |    | 70 |    |    | 75 |    |    | 80 |    |    |
|      | £.                                | s. | d. | £. | s. | d. | £. | s. | d. | £. | s. | d. | £. | s. | d. |
| 35   | 7                                 | 12 | 1  | 7  | 6  | 7  | 7  | 0  | 5  | 6  | 16 | 5  | 6  | 11 | 8  |
| 40   | 8                                 | 0  | 4  | 7  | 14 | 2  | 7  | 8  | 11 | 7  | 4  | 4  | 7  | 0  | 4  |
| 45   | 8                                 | 10 | 3  | 8  | 4  | 11 | 8  | 0  | 3  | 7  | 15 | 0  | 7  | 11 | 7  |
| 50   | 9                                 | 5  | 1  | 8  | 18 | 7  | 8  | 13 | 0  | 8  | 9  | 6  | 8  | 5  | 3  |
| 55   | 10                                | 1  | 8  | 9  | 15 | 5  | 9  | 11 | 6  | 9  | 6  | 9  | 9  | 2  | 7  |
| 60   | 11                                | 3  | 2  | 10 | 18 | 4  | 10 | 12 | 9  | 10 | 9  | 3  | 10 | 5  | 0  |
| 65   | 12                                | 14 | 7  | 12 | 10 | 5  | 12 | 5  | 5  | 12 | 1  | 1  | 11 | 17 | 3  |
| 70   | 15                                | 4  | 1  | 14 | 19 | 3  | 14 | 13 | 7  | 14 | 10 | 1  | 14 | 6  | 11 |
| 75   | 19                                | 1  | 10 | 18 | 15 | 7  | 18 | 11 | 7  | 18 | 8  | 2  | 18 | 4  | 0  |

## EXAMPLE.

A person, whose age is 40, would receive for £100 money, if the price of 3 per Cent. stock was 60, an annuity of £8, 0s. 4d. per annum. If stock was 65, an annuity of £7. 14s. 2d. per annum.

TABLE VI.

Shewing the rates of purchase of Government life annuities on a single life, as granted by an act of the 48th Geo. III. according to three different prices of 3 per cent. stock.

| Age. | Stock at 75. | Stock at 66 $\frac{2}{3}$ . | Stock at 60. | Age. | Stock at 75. | Stock at 66 $\frac{2}{3}$ . | Stock at 60. |
|------|--------------|-----------------------------|--------------|------|--------------|-----------------------------|--------------|
| 35   | 14,563       | 13,878                      | 13,043       | 60   | 9,494        | 9,009                       | 8,889        |
| 40   | 13,761       | 13,072                      | 12,371       | 65   | 8,242        | 8,081                       | 7,792        |
| 45   | 12,821       | 12,232                      | 11,650       | 70   | 6,849        | 6,734                       | 6,522        |
| 50   | 11,719       | 11,299                      | 10,714       | 75   | 5,395        | 5,333                       | 5,195        |
| 55   | 10,638       | 10,256                      | 9,836        |      |              |                             |              |

What must a person, 50 years of age, give Government for an annuity of £200 per annum, when the price of stock is 75?

Opposite 50 and under 75, is 11,719

Multiply by the annuity.. 200

Answer £2343. 16s.

2343,800

BY STAT. 53, GEO. III. CAP. 141, SECT. 2, IT IS ENACTED, that within thirty days after the execution of every deed, bond, instrument, or other assurance, whereby any annuity or rent-charge shall be granted for one or more life or lives, or for any term of years, or greater estate determinable on one or more life or lives; a memorial of the date of every such deed, bond, instrument, or other assurance, of the names of all the parties, and of all the witnesses thereto, and of the person or persons for whose life or lives such annuity or rent-charge shall be granted, and of the person or persons by whom the same is to be beneficially received; the pecuniary consideration or considerations for granting the same, and the annual sum or sums to be paid, shall be enrolled in the High Court of Chancery, in the form or to the effect following, with such alterations therein as the nature and circumstances of any particular case may reasonably require.

| Date of Instruments.       | Nature of Instruments.                                    | Names of Parties.                                           | Names of Witnesses. | Name or Names of Person or Persons by whom Annuity or Rent Charge to be beneficially received. | Person or Persons for whose Life or Lives the Annuity or Rent Charge is granted. | Consideration and how paid.                                                                                                                         | Amount of Annuity or Rent Charge. |
|----------------------------|-----------------------------------------------------------|-------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 9th and 10th August. 1813. | Indentures of lease and release.                          | A B of one part<br>C D of other part.                       | E F of<br>G H of    | C D                                                                                            | A B                                                                              | £100 paid in Money; £500 paid in Notes of the Governor and Company of the Bank of England, or other Notes or Bills of Exchange, as the case may be. | £100 per Year.                    |
| Same date.                 | Bond in penalty of £1200.                                 | A B to C D.                                                 | E F<br>G H          | } For securing the same Annuity or Rent Charge.                                                |                                                                                  |                                                                                                                                                     |                                   |
| Same date.                 | Warrant of Attorney to confess judgment on the same bond. | A B to J K and L M, Attornies of the Court of King's Bench. | E F<br>G H          |                                                                                                |                                                                                  |                                                                                                                                                     |                                   |

Otherwise every such deed, bond, instrument, or other assurance, shall be null and void to all intents and purposes.

By sect. 3 it is further enacted, that if any such annuity shall be granted by, or to, or for the benefit of any company exceeding in number ten persons, which company shall be formed for the purpose of granting or purchasing annuities; it shall be sufficient in any such memorial to describe such company by the usual firm or name of trade.

By sect. 4, where the person or persons to whom such annuity shall be granted, or secured to be paid, shall not be entitled thereto beneficially; the name or names of the person or persons who is or are intended to take the annuity beneficially, shall be described in such or the like manner as is herein before required in the enrolment, otherwise every such deed, bond, instrument, or other assurance, shall be null and void.

By sect. 8, all contracts for the purchase of an annuity with any person, being under the age of 21 years, shall be and remain utterly void; any attempt to confirm the same, after such person shall attain the age of 21 years, notwithstanding.

By sect. 9, any person who shall receive, directly or indirectly, any gratuity or reward for the soliciting or procuring the loan, and for the brokerage of any money that shall be actually and *bonâ fide* advanced and paid, as and for the price or consideration of any such annuity or rent charge, over and above the sum of ten shillings for every £100, so actually and *bonâ fide* advanced and paid, shall be deemed and adjudged guilty of a misdemeanor.

And by sect. 10 it is further enacted, that this act shall not extend to Scotland or Ireland, nor to any annuity or rent charge given by will, or by marriage settlement, or for the advancement of a child, nor any annuity or rent charge secured upon freehold, or copyhold, or customary lands in Great Britain or Ireland, or in any of his Majesty's possessions beyond the seas, of equal or greater annual value than the said annuity, over and above any other annuity, and the interest of any principal sum charged or secured thereon, of which the grantor had notice at the time of the grant, whereof the grantor is seized in fee simple or fee tail in possession, or the fee simple whereof in possession the grantor is

enabled to charge at the time of the grant, or secured by the actual transfer of stock in any of the public funds, the dividends whereof are of equal or greater annual value than the said annuity, nor to any voluntary annuity or rent charge, granted without regard to pecuniary consideration or money's worth ; nor to any annuity or rent charge, granted by any body corporate, or under any authority or trust created by act of Parliament.

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WILLIAM ROSS, PRINTER,  
*Bowlattey-Lane, Hull.*

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\$ 125.00

$$\begin{array}{r} 12 \\ 06 \\ \hline 234 \end{array}$$



